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ARCHITECTURAL MAGAZINE,
 AND
JOURNAL
 OF IMPROVEMENT IN
ARCHITECTURE, BUILDING, AND FURNISHING,
 AND IN THE VARIOUS ARTS AND TRADES
 CONNECTED THEREWITH.



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 AND FURNITURE.

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PREFACE.

IN completing this Second Volume of the *Architectural Magazine*, it is no small satisfaction to its Conductor, to be able to state, that the experiment of publishing a periodical exclusively devoted to Architecture, made by him in Britain for the first time, is likely to be attended with success.

On looking over the List of Contributors to the present Volume, it will be found that the number is very considerable, taking into account the infancy of the periodical. We consider this a circumstance which promises well for the support of the Magazine, and for the diffusion of the knowledge which it contains. It would be an easy matter to hire writers to produce elaborate essays on different topics; and we might by this means fill the Magazine without the aid of voluntary contributors. But what would be the consequence? A work for the few would be produced, instead of one for the many; and such a work as could never be carried on without great pecuniary loss, and could never effect the great objects which we have in view; viz. the diffusion of a knowledge of Architecture among general readers, and the improvement both of the knowledge and the taste, not only of young architects, but of all the persons employed in the different branches of building and furnishing. We are quite aware that it is the opinion of many architects, that "a little taste," in the carpenters and other mechanics that they employ, is "a dangerous thing;" but we consider a little taste better than none at all; and, if we live to conduct the *Architectural Magazine* for a few years longer, we have no doubt of rendering the "little taste," which now exists among carpenters and other mechanics, a great deal. There is nothing in the nature of the employment of a carpenter, or of a mechanic of any kind, to prevent him from having just ideas in matters of taste, as well as in other matters. All that he wants is education, and access to books; the first of these he is getting, or will get, from the establishment of national parochial schools by the legislature, and the second from having access to those libraries, museums, &c., contemplated by the Select Committee of Arts and Manufactures, which has just published its *Report*. We have repeatedly stated our reasons for being of opinion, that, to insure good taste in all the common buildings of a country, we must first produce it in the workmen who construct those buildings, and in the persons who occupy them. There is no workman who has so much to do with buildings as the carpenter; and our wish is to make all carpenters architects in point of knowledge and taste, and all persons whatever critics in architecture.

We can only effect these important objects by a various and extensive correspondence, and by the communications of eminent architects, together with those of general observers. We have been fortunate enough to obtain some of both classes, to whom we return our best thanks; requesting their continued cooperation, and inviting all others who take an interest in the subject of Architecture, whether they agree with us in opinion or not, to join them. We are always open to criticism; and we are not so wedded to any opinion, as to be unable to give it up when we are convinced that it is erroneous.

Bayswater, Nov. 15. 1835.

J. C. L.

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ORIGINAL COMMUNICATIONS.

ART. I. *On Unity of System in Architecture.* By the CONDUCTOR.

"THE unity of the whole, and the connection of the parts," are words which comprise almost every thing in the application of the principles of criticism to architecture, and to landscape-gardening. The word Unity is not unfrequently used to designate that quality in an object which is opposed to variety; but here the word Sameness would be preferable. The word Unity, as it appears to us, can be only legitimately applied to those compositions, every part of which unites in producing one kind of effect, expression, or whole. There are various requisites to this oneness of expression; such as, Unity of System, Unity of Style, Unity of Composition, Unity of Character, &c.; but we shall confine ourselves, in the present fragment, to Unity of System.

Every building must necessarily be constructed on one of two systems. The first is the system of supporting the roof by pillars, round or square, surmounted by horizontal beams; or, in other words, by the columns and architraves of Classical architecture: the other system is that of supporting the roof by walls, or by systems of arches, as in Gothic architecture, and in some modifications of the Roman manner of applying the Classic style.

Now, to preserve Unity of System in a building, the architect must compose his design, throughout, with reference to one or other of these modes of supporting the roof. It is not necessary that the roof should actually be supported either solely by columns or solely by arcades; it is sufficient that it should appear to be so: for, in architecture, as in every art which is far removed from a rude state, a system of fiction is adopted, for the sake of consistency and effect, and to keep up the associations connected with the aboriginal uses of the parts employed. A pilaster, for example, represents a square column or pillar, supposed to be of the thickness of the wall in which it is placed, and to be of a much stronger and more durable material than the wall itself. The wall, indeed, is supposed to be

merely the filling in of the intervals between the pillars, from the ground to the architrave, adopted originally to keep out the weather, and of no use whatever with reference to supporting the roof. This filling in we may suppose to have been originally of mud or brickwork, or even of straw or wood. This is the fiction of Classical architecture, but the reality of it is, that the pilasters and the wall are generally of the same material; and that the former, with their architraves, are merely projections from its surface, of little or no real use, but as supporting the fictitious idea intended to be conveyed. We may observe here, incidentally, that this system of architectural fiction can neither be properly understood nor enjoyed by any but those who have, to a certain extent, studied the details of Classical architecture, and their supposed origin.

Where the system of arches is employed, that part of the wall under the arch which is supposed to be filled up only to keep out the weather (like the intervals between the square columns) is supposed to be built or filled in with a weaker material, and of a less thickness, than the piers which support the arch, and the parapet over it. This is the fictitious system acted upon: in the real one, the materials and the thickness may be nearly the same, both in the piers and between them; and the whole wall may be, as it commonly is, of the same material.

Now, on the supposition that this theory of a fictitious system is correct; and that, when such a system is commenced, it is worth while to pursue it through every part of a building; a host of architectural errors, committed by our first architects, at once recur to our recollection. Of these we shall here point out a few, for the purpose of suggesting to the mind of the young critic how he may discover others.

Whether the roof is supported by a system of square or round columns, or of pointed or circular arcades, the walls in the intervals should never have much expression given to them as such. If, for example, they are of stone, or stuccoed so as to resemble that material, the joints of the stones should never be strongly marked, and on no account so much so as to come under the denomination of rusticated, and the stones should never be large. In proportion as the expression of these filled-in or shelter walls, as they may be called, is strong, in the same proportion is that of the supporting columns, pillars, or piers, weakened, and, consequently, the fiction intended to be conveyed counteracted. This rule, which no one who knows any thing of architecture can deny being founded on the soundest principles, is very commonly violated in London; and, as one of the grossest instances, we have only to refer to the Bank of England: St. Paul's is also liable to the same objection, as well as Somerset House, and Whitehall.

When the piers in a system of arches are rusticated, or of any kind of stone (such as granite) which indicates extraordinary strength, the interspaces should be plain, or be, or appear to be, of a weaker kind of stone, or of brick.

When columns or piers are of the same kind of stone as the spaces between them, they should be, or should appear to be, composed of larger blocks of that stone, as being expressive of greater strength. From this rule arises a difficulty in executing a system either of arcades or pillars, with proper effect, in common brick work; but when the pillars or piers are stuccoed, and marked or rusticated, the difficulty is turned into one of the greatest beauties. The introduction of stone courses or mouldings, or of windows between the piers, greatly overcomes the difficulty: of this there is a fine example in St. Luke's Hospital, where the system of arches is continued throughout the whole elevation of the principal front.

One of the grossest violations of the principle here laid down, is, when a system of piers and arches, and a system of pillars and architraves, are employed in the same building. This error may be observed in the grand hall of the General Post-Office, where the windows in the farther end of the hall, opposite the principal entrance, have circular heads; while all the other openings in the same hall, and all those in the principal elevation of the building, are square-headed. In the interior of the Pantheon Bazaar in Oxford Street, the system pursued is that of piers and arches, and the effect, looking at the sides and roof, when entering from Oxford Street, is harmonious and beautiful; but, on arriving at the opposite end, if we turn round, and look up to the gallery, we are shocked by a square opening with coupled pilasters on each side, surmounted by an architrave, without any connection whatever with any part of the prevailing system.

We shall continue to apply this principle of Unity of System, till we get through a number of the more remarkable buildings in London.

ART. II. *Some Remarks on Architectural Design, as affecting the inferior Arts connected with Building.* By E. TROTMAN, Esq.

By the term "inferior arts," we would be understood to refer to those which are called into operation to render an edifice complete, but which are not essentially concerned in its construction and stability. With the works of the mason and bricklayer, of the carpenter and carver, is obviously the first business of the architect; but his attention might often extend, with advantage, to the less important performances of the ironworker and cabinet-maker, not to say of the paper-hanger and

upholsterer. In these we have been surprised to observe how much labour is thrown away in the endeavour to produce effect, from want of a proper acquaintance with leading principles, which would serve, not unfrequently, to abridge the toil and improve the result, in precisely the same proportion. The reason of this is obviously to be met with in the fact that superficial observers have no idea of character in minutiae, except such as may be gained from a general imitation, on a small scale, of great and striking objects. They do not discover that their originals would furnish them with details and detached features, analogous in office to the subjects which they have to decorate, and capable of being moulded into a chaste and unobtrusive consistency: but they must needs endeavour to secure character, by crowding as much elaborate detail as possible into a small space; and thus, grasping at too much, they lose all. We may take an illustration of this, in the current Gothic of stoves, grates, fenders, and the generality of ironwork; wherein the established usage is to begin at the wrong end, with the unsparing application of tracery, crockets, imitations of church windows, and the like, as one should expect to find a Grub Street versifier manufacturing an epic with hard words and the rhyming dictionary: the pains, in both cases, being rewarded with similar success. In different style, but in the same feeling, the most handsome design for such a thing as a candlestick would, a few years ago, have been sought for in some form like that of a little Corinthian column, fluted, cabled, enwreathed with garlands, and mounted on a pedestal equally gay, with flowery festoons. To whatever degree the recent preference for Grecian models of architecture may have impoverished many of the compositions of our own day, it has at least been productive of this good effect, that it has led to the rejection of some of this frivolous crowding with ornament: thus preparing the way for a better style; a style for which, too, it has furnished material, in introducing us to a greater acquaintance with foliage and details of classical design.

It is worthy of notice that all artificial forms of decoration, as applied to the commonest objects that come under our daily observation, where the productions of nature are not imitated, are borrowed from, and are truly the property of, architecture. Reeds, hollows, flutings, fillets, and the like, are constantly applied (somewhat indiscriminately, indeed) to the most ordinary kinds of turnery, metal, and cabinetwork. As more decoration of figure is attempted, the more is architecture laid under contribution. Caricatured its members often may be, as applied to the inferior arts; but they are still to be referred to it as their source, varying with the popular changes in architectural taste, though lagging far behind the standard of professional

acquaintance with any particular mode. Nor is it to be expected that the improvement will be much greater, until those who are intrusted with the execution of such things feel the necessity of acquiring an extensive knowledge of architectural decoration and precedent, and thus of discriminating between the showy and the expressive. In short, in all these subjects expression of purpose is every thing. In Gothic furniture and fittings, for instance, the back of a chair is not to be the front of a doll's cathedral, a stove is not to be a shrine, nor a fender a miniature screen wall. As little is a clustered column to be transformed into a gas-pillar, or a buttress-flanked arch into a scraper. In such cases the borrowed and misapplied character makes those matters ridiculous, which, under a less assuming, and apparently less studied, form, would contribute to, instead of interrupting, the harmony of the architectural features with which they come into connection. Hints for the better design of such articles may be obtained without difficulty by those who have the discernment, and will take the trouble, rather to modernise the antique than to Gothicise the modern, rather to modify old outlines than to fill up commonplace outlines with old details. Thus, the simple flowing lines which describe the plain stalls in some of our ancient churches might be adapted to the purposes of the modern Gothic chair, with decision of character, yet without necessarily involving cumbrousness. The dogs and andirons of the old fireplaces might afford a suggestion for the improved consistency of a grate, even without causing the rejection of coal fires or of the principle of the register stove. To do this, it is not needful to seek for the relief of many mouldings, but to know how to use even one, the simplest and plainest, with force and expression. The mere chamfering-off of an edge will often bespeak more of this perception of expression than could any elaborate decoration. So acute, indeed, was such perception in the minds of our old builders, that we see them constantly adopting this particular mode of giving character to the timbers even of roofs which were never intended to be, nor indeed could be, exposed to public sight; and that, too, in the most rugged and economical order of workmanship. Masters in their own peculiar style, they felt themselves at no loss for means by which to give significancy to their work, where, from considerations of economy, they were denied the use of elaborate ornament. We should not have found them, in the design of some commonplace piece of metal-work, covering every square inch of surface with tracery, for the purpose of classification, like the painter's explanatory "this is a lion." This architectural quackery, like other kinds, betrays itself in its over-eagerness to be fine.

Those who have to do with the works of art, even in its

inferior departments, have no less need than artists of a higher order to remember that character and force of outline are matters of the first importance; and that, when these are rightly understood, a well-stored mind will supply the detail almost mechanically. In character of outline, we would understand both the expression of purpose and the expression of style; and this, as united with force, comprehends both elegance and individuality. Thus, in the outlines of the painter, the expression of purpose is identical with that distribution of form which, at the first glance, reveals the master passion of the subject; while the expression of style necessarily governs all matters of costume and of circumstance. The outlines of architectural compositions are ruled by precisely the same principles of character; in the application of which, indeed, a parallel representation with the former case might be extended to a considerable length. The same rules will hold good as we descend to all less important classes of ornamental figure; and their necessary effect will be, an increased simplicity of composition in the progress downward, and a less decided assumption of those architectural forms which we have shown to be inseparable from the decoration of all regular figures. Thus, to revert to a former simple object of comparison, we shall, of course, be led to reject the conceit of the Corinthian-column candlestick, and to give the preference to forms which, as applied to a thing so diminutive, will be more free and intelligible: to those, for instance, of a few intertwining bay leaves, or a modified acanthus. Designs of this character are now, fortunately, not uncommon in our shops; and are frequently executed, in the soberness of bronze, with much taste and beauty. It is to subjects which require boldness and ornament, without much architectural pretension (especially as associated with the features of the Italian style), that the mode of decoration known as that of Louis XIV. is so admirably adapted. It is, indeed, a mode which, when amplified, and carried to such an excess as to interfere with, or to supersede, the members of regular architecture, becomes unmeaning and absurd; but, when confined within its proper limits, as applied to various articles of furniture, it is at once characteristic and elegant. It is so, because the flexibility of its prevailing lines renders it easy of adaptation to the forms of common objects; while its playfulness is grateful to the eye, and its want of architectural coherency leaves it the less exposed to abuse at the hands of those whose general knowledge of style may be but superficial.

These principles of attention to expression and beauty of outline on the one hand, and of regard to, and modification upon, ancient precedent on the other, are undoubtedly the chief guides to excellence in those arts that are subordinate, as in those that are essential, to architecture. We might trace their

natural influence through many of those departments to which they are but too little applied, and show how much of beauty and of fitness has been lost by their neglect. Suppose the very agreeable innovation of carpeting required for a suite of Gothic apartments, where shall we obtain ready-made patterns satisfactory to the architect of cultivated taste? For these, however, the designs of our old stained glass, and other occasional paintings, will afford excellent suggestions, in their richly flowing diapers, their undulating foliage on grounds of vivid blue or red, their lozenge compartments of rose and fleur-de-lis, and many other varied applications of leaf and flower. Or, again, hints for the same purpose may be gained from the ornamental tile-paving anciently in frequent use; not to say from the tapestry of correspondent age. Even the paper-hanger may have recourse to some of the same sources of information with advantage. Might not, too, the accompaniments of architecture, after the Roman manner, be improved by a reference to such decorations as those of the paintings of Pompeii, and of the Roman tessellated pavements, not uncommonly met with even in our own country? In addition to those classes already enumerated, we need scarcely remark that the ornamental glazier and glass-stainer are persons in whom an acquaintance with the principles we have noticed is especially requisite; so much so, indeed, that their designs ought always to be under the immediate control of the architect.

But we will not attempt to follow out the operation of these principles in all their relations. We can but briefly suggest and recommend them; leaving it to the reader to supply, by the study of examples, that practical illustration which cannot be afforded by mere verbal description.

London, Nov. 28. 1834.

ART. III. *On the Principles of Taste, with reference to Architecture, and the Fine Arts generally.* From the French of M. Quatremère de Quincy. By P.

AMONG the different acceptations in which the term Taste is used in the fine arts, the most general is that which considers it more as an active principle of the mind than as genius. Taking the word in this sense, we shall first consider Taste as the innate feeling or sentiment of propriety; we shall next examine it under another of its acceptations, as indicating a manner of observing and imitating nature. Afterwards, we shall exhibit it under a third point of view, as synonymous with a distinctive style or character of art.

Sect. I. *Of Taste as an innate Feeling or Sentiment of Pro-*

priety. — There is no doubt that, as the general idea of Taste, in its application to the works or labours of the mind, and to the powers of imitation, was borrowed from the property possessed by the physical organs of appreciating the savour of food, the word which expresses this idea intellectually, ought only to signify the faculty of discerning the qualities of works and of outward objects. To appreciate the value and nature of this faculty, in the sense to which we shall here confine its acceptation, we must know what are the qualities of those works and objects of which Taste is peculiarly the judge. Experience and theory teach us that there are in all things and between all objects belonging to the fine arts certain slight and delicate affinities, the observance of which does not constitute the essential merit of a work, but which complete its accessory value, and add to the pleasure received from it.

For example, that which, according to the ordinary language of the world, constitutes a man of taste, consists in a certain style of manner; in the talent of speaking to the purpose; in wit and agreeableness; and in a polished and prepossessing exterior. Again, in all that relates to imitation in the fine arts, the faculty which we call Taste is exercised principally on the agreeable qualities, and in the choice of a certain manner of being or acting which the sentiment of taste alone can enable any one to comprehend, and which no analysis can demonstrate. Thus, in drawing, it is not Taste which teaches us, or which causes us to appreciate, the regularity of forms; Taste, on the contrary, most frequently causes or justifies exceptions to rules, and, by a sort of charm, softens their rigour and tempers their severity. It is not Taste which, in composition, discovers those grand parts of design, those happy lines, those imposing masses, which seize at once upon the mind and the senses. But it is Taste which often mingles with these combinations that attraction of ease and facility from which results the appearance of a spontaneous production.

In colouring and execution, Taste is neither capable of producing a great effect, nor that brilliant harmony, that appearance of truth, nor that boldness of execution, which every one knows belongs to another faculty, Genius: but the influence of Taste is not the less useful, whether it moderates the flight of imagination, or suggests a happy choice of varied resources; or adds to the work certain ornaments which take from it all traces of stiffness or formality. Thus Taste gives the last charm to the productions of Genius.

In architecture the effects of Taste are neither less felt nor less important: perhaps, even, this art being of all others the most arbitrary, it has more occasion than any other for Taste to justify its use. It belongs to Taste to determine the proportions

and the style which shall constitute the character of a design. It is Taste which selects from the varied shades of different styles that which will best suit the general expression to be produced. It is Taste, particularly, which we should require, to decide upon the quantity of enrichment which may be employed, on its distribution, and on the choice of ornaments to agree with the ultimate destination of the edifice, and with the effect of each of its parts.

When we endeavour to trace the effects of Taste in architecture, we fancy we can detect every part that manifests its influence; but, when we come to analyse this feeling, we find that Taste is not shown singly in the grandeur of invention, or in the power of reasoning displayed; or even in the energy of execution, or in the effect of truth; but in a certain charm which combines these qualities, and which, by ruling the action of each, arrests and fixes it at the point which is most suitable to each subject, and to each of its parts. It is from its possessing this charm, that Taste has been defined, with much justice, the *Innate Feeling of Propriety*.

Taste, considered in the acceptation under which we have just defined it, is, then, a necessary quality for the completion and perfection of all other qualities. Although it operates on things not apparently very important, it is from its direct or indirect operation that result the full merit and charm of every work. Nevertheless, we ought to say that we should fear allowing it to have too much rule; as its mode of action, ill understood, would lead to excess. If it is not restricted within just bounds, it spoils what it ought to embellish; and it finishes by destroying itself.

Sect. II. *Of Taste, as displayed in the Manner of observing and imitating Nature.*—The word Taste bears a second acceptation, when used in the language of the arts, with an epithet joined to it; as, a grand, niggardly, correct, pure, depraved taste, &c. It appears, then, that Taste signifies, when applied to an artist, his manner of observing and imitating nature.

To define here all the different modes of observation from which result what are called the diversities of taste, would be to enter into a discussion on the meaning of all the words employed to characterise each style; but we must not omit to explain the most common and usual ideas which are expressed by the words good or bad taste, about which there are many controversies. The phrase good taste supposes and admits that, in the different styles of observing and imitating nature, there is one mode acknowledged as good, and as preferable to all others. But, even on this point, numerous disputes have arisen, in which the familiar proverb has often been quoted, "There is no accounting for taste," without thinking that this proverb is only

applicable to the physical taste, concerning which all controversy would, indeed, be ridiculous. With respect to intellectual taste, on the contrary, the dispute is not only natural, but necessary. In extending the question upon imitative taste to all countries, to all ages, and, consequently, to every diversity in the mode of observation, some will hold that certain tastes, from their prevalence, ought to rule; while others will pretend, from the diversities of taste which are acknowledged to exist, that no one taste is better than another. We do not propose to enter here into the grounds of this debate; we shall only confine ourselves to showing that, the word Taste being susceptible of a very vague interpretation, it is this vagueness of idea that has produced the existing diversity of opinions. If, in reality, according to the sense that ought to be given to the words good taste, these words signify the best manner of seeing and imitating nature; in the parallel of tastes which are opposed to that which we call good, two questions arise which are never answered. The first point is to ascertain whether those countries, and those men, whose manners of observing and imitating nature have been compared, have ever really observed it, and have ever really proposed to imitate it. The second, and more important, point consists in examining whether these countries, and these men, were or are in a state fit to observe and study nature, and, consequently, to imitate it.

In the comparisons which are made between the different tastes which have reigned, or do still reign, in different ages and countries, and that which we acknowledge to be exclusively good taste, we should not decide according to the majority of votes, because the majority is necessarily composed of people ignorant of art. Every kind of taste which results only from the mechanism of instinct, or which belongs to the irregular influence of local or temporary causes, and does not rest on the study of nature, cannot enter into comparison with what we call good taste; inasmuch as it is certain that good taste originated among the people most capable of imitating nature, and in the country where all sorts of circumstances favoured its study, and, if we may so say, necessitated artists to penetrate to the grand principles of their model (nature), and to derive from it all possible results and consequences. Taste, considered as a manner of observing and imitating nature, cannot arrive at the point of attaining the best manner of doing so, but by the most perfect knowledge of the principles of this kind of imitation. As these principles are constant and invariable (often as they are misunderstood), it always happens that what is termed good taste reappears and reassumes its empire as soon as it finds men and times sufficiently enlightened to feel the necessity of recurring to its first principles: and, it will be observed, that, in

reappearing in the same shape, this taste will always show itself to be the good; while false, or bad taste, will reproduce itself under a hundred different forms: which is to be expected, because false, or bad, taste wants a fixed principle, or, if it be allowed to have any principle at all, it is that of never acknowledging any.

Sect. III. *Of Taste in its distinctive Character.*—To finish explaining the principal acceptations of the word Taste, in its connection with the language of the arts, we must add, that we likewise take this word in a sense something like an individual manner or physiognomy, when it is applied either to times or countries which have cultivated, or do cultivate, the fine arts with success; or to the artists of different schools, or to their productions. It is certainly and exclusively of the manner and method (whatever it may be in the same principles of imitation) that they say, the Italian, Florentine, Venetian, French, Flemish taste, &c. These diversities of style are only the varieties of the same taste, or, if it is preferred, dialects of the same language. All these schools are united among themselves by a community of principles; but each, having cultivated one part in preference to others, distinguishes itself either by a superiority in one style, or by an inferiority in another. The word Taste, inasmuch as it signifies the distinctive character of the works of each master, presents still a shade of difference in its acceptation. Properly speaking, it might be pretended that there are as many tastes as artists. Taste would then signify individual physiognomy, personal variety, or else every one's peculiar mode of action.

It is for this reason we say, the peculiar taste of each artist, to express the inclination he has for a certain branch of the art, or the preference he gives to one kind of subject more than another. This we sometimes call natural taste, because it appears (if we may so say) to be innate, and is derived from an inclination which is apparently received from nature.

All these notions, as may be perceived, are as applicable to architecture, as to other arts. The different styles of architecture are distinguished by giving them the name of tastes. We say the taste of Grecian, Roman, or Modern architecture, the Gothic taste, the Egyptian taste. This word may then be considered as sometimes synonymous with principles, sometimes with style, and sometimes with caprice.

How much will an art condemned to lend itself to the variable wants of society, the true model for which is an understanding of the moral law of nature, and the combinations and effects of which cannot be calculated by any material type or figure—how much, we repeat, will it be exposed to become the sport of imaginative fancies, of paradoxes, of the spirit of systematic exclusion, and of the mutability of the spirit of innovation?

ART. IV. *Remarks on Competition Plans, &c.* By HOSTIS.

EVERY person, whose attention has been in the least degree directed to architecture, must have observed that, in the present day, the practice of procuring plans for buildings, by public competition, is becoming more and more prevalent. It is, perhaps, only of late years that this custom has been generally acted upon; and it is more commonly employed in the case of public buildings than in those of a private nature. When a public building is about to be erected, the parties advertise a description of what is wanted; offering, generally, a premium for the best plan, or for that which shall be finally adopted. Sometimes the successful competitors have nothing for their reward but that of being employed to conduct the work, for which they are paid as in ordinary cases. The plans submitted are, or should be, distinguished by a private mark, referring to a sealed letter sent by the competitor, in which his real address is to be found; and it not unfrequently happens that there will be from forty to fifty of such plans sent in, varying, of course, in equally numerous degrees of merit. Not a few of these drawings are the result of great labour, seldom occupying the time of the competitor for less than three weeks; and, if the building be very extensive, and the design well matured, having employed his sole attention for months together. The unsuccessful competitor, consequently, sustains a very serious loss; as he is not like the landscape or figure painter, who can carry his drawings to the market: the plans of the architect can be of no use but for the purpose for which they were originally intended. In fact, there cannot be, in any other profession, a competition which requires such a sacrifice on the part of the competitor as in architecture; and, were this sufficiently impressed on the public mind, there can be no doubt but the labours of the architect would, in all such cases, be more duly appreciated, and, at least, rewarded with an impartial distribution of justice.

It may here be remarked, that sufficient time is seldom allowed by the advertisers for preparing the plans; for it will be confessed by every architect, that the faults of his composition will be easier detected by himself after it has been laid aside for a time: we should say, therefore, that six months at least should be given, or even a longer period, according as the subject may require.

Although the system of competition in architecture is accompanied with no small expense to the parties competing, yet it cannot be denied that, when rightly conducted, it is conducive to the greatest advantages to the public, and is the only true method of eliciting the brightest talents of the country; especially when the premium held out is of sufficient value to induce pro-

ficient architects to come forward with their works : and, surely, the erection of a building which is destined to continue for ages, standing forth to posterity as an example of the architectural genius of our time, is not unworthy of the most assiduous attention. The practice has also a beneficial effect, in affording to a young architect facilities, which he could not otherwise possess, of pushing himself forward. Private competition plans are sometimes required, where the competitors are previously chosen out, and where all are paid a certain amount for their trouble, whether successful or not : this is certainly the most liberal method, and should be adopted where the funds are sufficient.

In most cases where a decision is made on competition plans, the judges consist of men who are but indifferently qualified for the task ; and whose fancy is easily carried away by a gaudy picture, the intrinsic merits of which they are incapable of appreciating ; or, perhaps, by a design which has nothing else to recommend it but that of being so commonplace in its character as to be more familiar to their ideas than one of higher pretensions. Indeed, it is not to be supposed that men, whose pursuits of life are so totally unconnected with the subject as never even to have led them to the inspection of a simple plan of a house, should be able to form a correct judgment of a number of elaborate drawings. It often happens, indeed, that the judges are so bewildered with the brilliant display before them, that they readily give way to some almost equally ignorant but pretending builder, to whom they look up as to the architectural oracle of their body ; and who, it may be supposed, will not let slip such an opportunity of serving his own ends. This may, perhaps, be thought rather an uncharitable conclusion ; but, certainly, there is but too much reason to fear that sinister influences have, in many cases, had an undue weight : and it is the particular object of this article to point out these grievances.

On such occasions as that we are just referring to, the most obvious method of proceeding, and that which would be the most entirely free from all suspicion of partiality, would be, to name two or more architects, of acknowledged celebrity in their profession (and residing at a distance), to whom the plans should be sent for final decision. Care should also be taken by all judges, in forming their decision, to keep in mind the terms of the competition ; for, although the value or cost of the building required by the advertisement be strictly attended to by some competitors, yet there are others who will disregard it ; and will produce an elegant design, although its expense should be double the stipulated estimate ; and who, by this trick, may blind the judgment of the umpires, and carry off the prize.

The undue means which are sometimes resorted to by competitors, to forward their own cause, are disgraceful in the

extreme: some have been known openly to carry about their designs, for the purpose of procuring votes before the general exhibition; some unfairly attach their names to their plans (instead of using a private mark, as they ought to do), in the hope that their friends may exert undue influence in their favour, or from a vain confidence in their own importance, which leads them to expect that the name alone will produce a favourable impression; and some have even been known, surreptitiously, to withdraw their designs from the exhibition, in order to add improvements which have been suggested by the designs of another: nay, such is the total want of principle, and disregard of justice to the competitors, shown in some cases, that an instance could be brought forward where one of the competitors was appointed the judge! This competitor judge most naturally gave his decision in favour of his own designs; and the unsuccessful competitors were dismissed with the most cogent and satisfactory argument that "the judge was a man of such respectability, that he would not have chosen his own design unless he had considered it the best!" Is it possible to conceive that language could be so sophisticated as to apologise for such conduct? Thus it is that nine out of ten competitions are decided; and thus are the architects treated who have spent a large portion of their valuable time for the benefit of the public. It must be acknowledged, however, that isolated cases occur, though few and far between, where no complaints of this nature can be made, and where fair play has been allowed to have had full scope. The Tron Church steeple, Edinburgh, erected, in 1828, by the architects Messrs. R. and R. Dickson, may be mentioned as an instance of fair competition: the choice of the plan reflects the highest credit upon the then magistrates of the city, who made their election from a great number of designs. Considering its cost, this steeple, for aptness, originality, and picturesque beauty, can scarcely be surpassed in any country. It would not be easy to cite many instances of the same kind in Scotland; but we may mention another, viz.: Burns's monument at Ayr, by Thomas Hamilton, Esq., of Edinburgh. This is an exquisite gem of Grecian architecture; of which school its tasteful architect is a distinguished disciple. Finally, it is evident that the grievance here complained of, and which calls so loudly for redress, is in no way amenable to the civil law; unless in such a case as we have before hinted at, viz. where the judges do not abide by the advertised terms of the competition. Even in such cases, we are not sure how far they lay themselves open to have their proceedings legally called in question; so that an appeal can only be made to the moral rectitude of society: and we have no doubt that the evil only requires to be fairly exposed, to be, in time, totally eradicated.

Edinburgh, Oct. 1834.

ART. V. *On the External Ornaments employed in Architecture.*

By JAMES MAIN, Esq.

EVER since the commencement of the *Architectural Magazine*, I have had it in contemplation to offer a few remarks, or rather to ask a few questions, relative to the external ornaments of some of our modern buildings; which, I conceive, deserve a little more taste bestowed on their designs than appears at present to be the case.

What particularly strikes me is, that, if any rules have been laid down for the guidance of the architect in this branch of his profession, they are at this time, in many cases, sadly neglected. In looking round among the nations where architecture has flourished, perhaps the buildings of the Chinese are the most profusely ornamented. Fretwork of every character prevails; not only on and between the paneling of the walls, but also along the ridges, eaves, and hips of the roof. Within, and at the angles and terminations of these frets, the most hideous and uncouth figures of monstrous animals are lavishly introduced. The carver, gilder, and painter are all employed in embellishing both the interior and exterior of the Chinese buildings, whether public or private: but all their ornaments are of the most fantastic character; where neither grace nor propriety is visible, and where not a single object can be seen worthy of imitation.

The remains of Egyptian architecture are also profusely ornamented with ideal and fanciful configurations. Hieroglyphics appear on almost every member of their buildings; but these embellishments are of a far higher order than those of the Chinese, or, perhaps, of any other country. They are biographical, geographical, historical, or astronomical signs or emblems. By them the succeeding generations of the Egyptian race were not only taught the titles and imputed attributes of their deities, but the names, the deeds, and the fate of their princes and eminent men; and the chronology of their once powerful country could be learned from the sculptured face of many of their monumental, sepulchral, and public buildings. Such embellishment is rational, because useful, whether it be elegant or not.

Throughout Hindustan, Persia, Assyria, and the surrounding nations, much external ornament was bestowed on the pagodas, mosques, and other public edifices; but, unless it were in frequent repetitions of the national ensigns, there was neither meaning nor display of legitimate taste observable in the style of architectural embellishment.

It is not till we arrive at a later period, and among the examples left us of the architecture of Greece and Rome, that we behold appropriate and significant embellishments introduced.

These were not mere creations of fancy, without meaning; but, in most cases, perfect imitations of realities. Religious solemnities, sacrifices, military processions, &c., furnished the Grecian and Roman architects and sculptors with the finest objects for their designs; while their mythology, though fabulous, supplied the most lofty ideas in the personification of their divinities, graces, virtues, seasons, &c. In the application of these, some design or purpose was apparent; and it was generally characteristic of, or characterising, the place where erected. Emblematic ornaments are always admissible, if properly, and not too ostentatiously, applied; and, I presume, the ample field of nature is the only legitimate source whence they should be drawn.

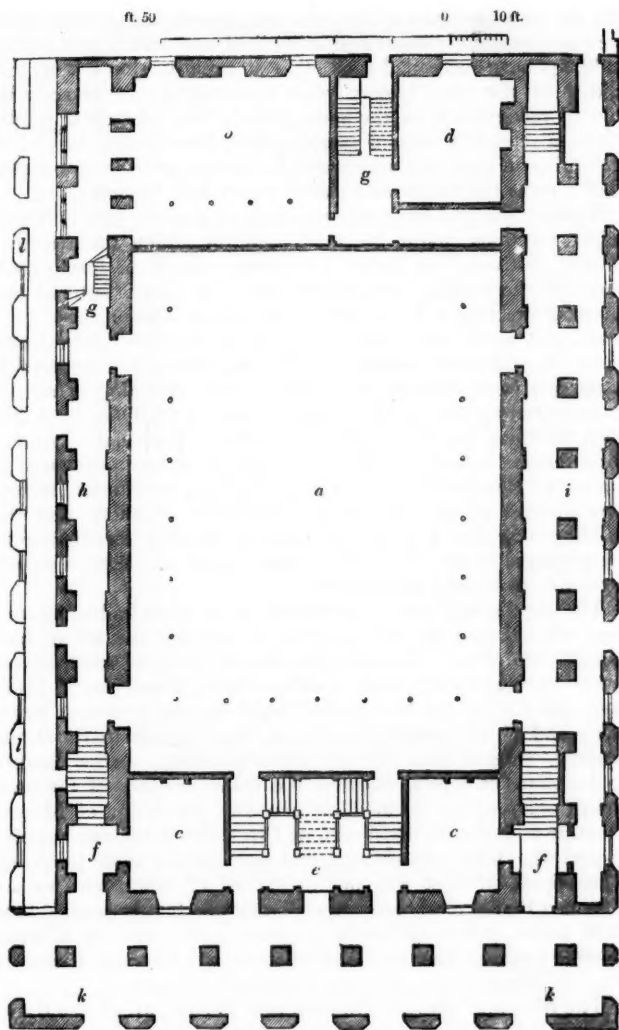
Having premised thus much, I now come to the questions which I beg leave to put, viz.:—Do the ornaments of buildings deserve any exercise of taste? Can these ornaments add to, or detract from, the dignity of an edifice? Are embellishments only admissible in certain orders or styles of architecture? Should they be imitations of physical entities, or the mere phantoms of fancy?

These questions may, no doubt, be easily answered by some one of your correspondents. The subject may be deemed rather curious than important; but it allows scope for much reflection, as well on what has been heretofore done, as on what should be the governing principle in all that may be done in future. Never before, in this country, were the arts of ornamental plastering, brass and iron founding, decorative upholstery, joinery, &c., more in fashion; and it is highly desirable that consistent and rational designs should be within reach of the artists, in each of these arts, for imitation; or, at least, that some bounds should be prescribed, by the arbiters of taste, to keep the *mar-art-ists* from extravagance. Why should they be allowed to rob the calico printer of his design, as has been done for the frieze of Pimlico palace? or filch from the stores of *nothingarianism*, as has been done to fill up the openings on each side of the Roman gate at the top of Constitution Hill? In these instances (which are all I think it necessary now to adduce) there is no breach of the second commandment committed; but, surely, far more appropriate devices might have been chosen.

Chelsea, Aug. 5. 1834.

ART. VI. *A Descriptive Account, accompanied by Plans, Elevations, Sections, &c., of the Birmingham New Town Hall.* By A RESIDENT IN BIRMINGHAM.

BIRMINGHAM, within the last twenty years, has risen greatly in the scale of population, wealth, and importance; and is now



Ground Plan.

a, The hall, 140 ft. by 65 ft., and 65 ft. high; b, a committee-room, 45 ft. by 27 ft.; c c, two rooms, each 19 ft. by 17 ft.; d, a room, 20 ft. by 18 ft.; e, entrance-hall and staircase, 30 ft. by 19 ft.; f, stairs to the side gallery; g, stairs to the orchestra; h, corridor, with entrance to the hall; i, corridor, or vestibule, to the hall; k, open arcade, or public footpath, open to Congreve Street; l, a wall, which is not at present finished.

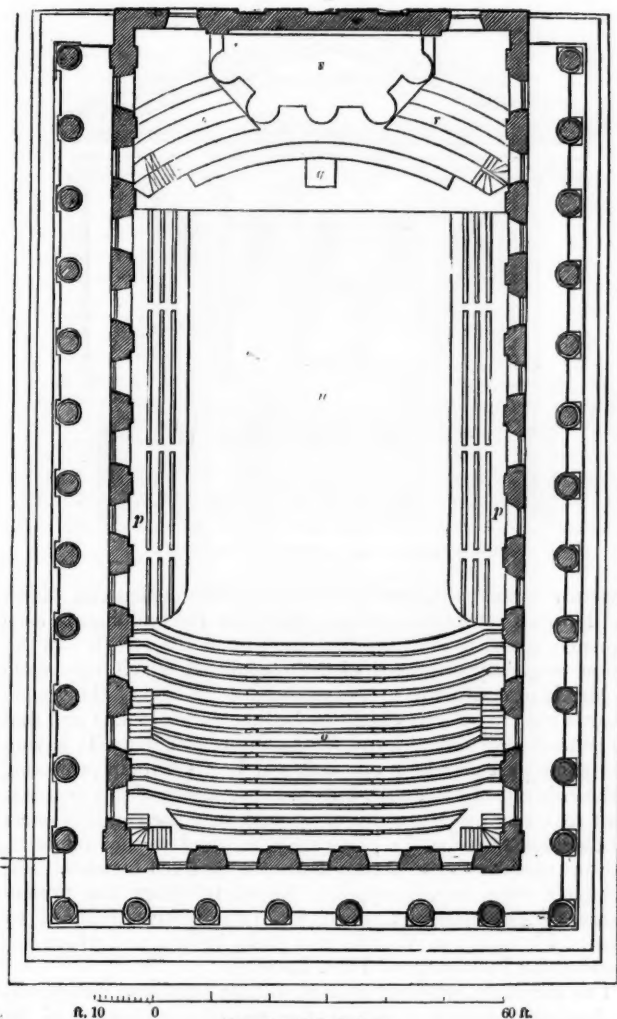
rapidly becoming one of the first manufacturing towns in the kingdom. The improvements in the town itself have kept pace

with the improvements of the arts and manufactures which have been so successfully cultivated in it; and new streets and public buildings have succeeded each other so rapidly, that a stranger, who knew the town twenty years ago, would now scarcely be able to recognise it as the same place. New churches, public offices, a school of arts, a market-place, new banks, &c., rival each other in taste and architectural display; and the new Town Hall crowns the whole with classic purity and magnificence.

Birmingham had long felt the want of a great hall in which public meetings might be held; and in which the triennial musical festivals, so justly celebrated, might be performed. Some of the leading inhabitants had, for years, fostered the desire of erecting a town hall which would answer these purposes, and, at the same time, give rank to the town. After many meetings, and much negotiation, the majority of the respectable ratepayers were induced to consent to the obtaining of an act of parliament granting the power of raising 25,000*l.*, by a rate upon the town, for the purpose of erecting a town hall. An act of parliament was obtained, and a piece of ground purchased at the top of New Street, on which the building was to be erected. The ground chosen was in an admirable situation; and the building, now that it is erected, forms a beautiful termination to the principal street, while its entrance front and flank are each accessible from very good streets.

The site having been determined on, a town hall committee was next formed for the purpose of carrying the act of parliament into effect. Towards the close of the year 1830, advertisements to architects were issued, offering premiums of 100*l.*, 60*l.*, and 40*l.* for the best three designs for the proposed structure; and about seventy architects, from various parts of the country, entered into the list of competition. After mature deliberation for several months, the commissioners of the town almost unanimously decided on choosing the design of Messrs. Hansom and Welch, architects, of Liverpool, as the one in every respect the most magnificent and suitable for their purposes. The stipulated cost was not to exceed 17,000*l.*; and we are informed that several designs were offered, highly creditable to their authors: among which we may name one by Charles Barry, Esq., of London, and another by Thomas Rickman, Esq., of Birmingham, as being prominent in merit.

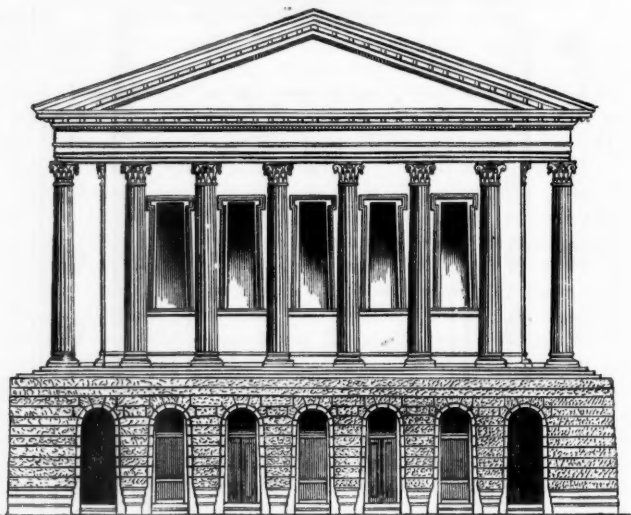
The design of Messrs. Hansom and Welch, which the drawings will best illustrate, was a simple Corinthian temple (after the example of that of Jupiter Stator), mounted on an elevated rustic basement; which basement was so arranged as to afford all the conveniences of entrances, corridors, and saloons necessary to give comfort to the hall, and to afford every possible facility of ingress and egress to and from it.



Disposition of the Galleries.

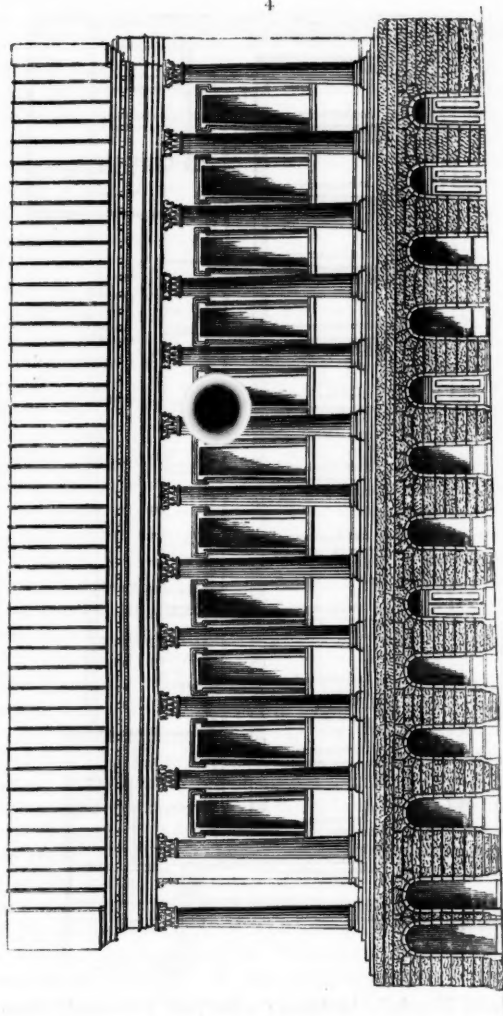
n, The space in the middle of the hall; *o*, the patrons' gallery; *p p*, the side galleries; *g*, a platform for public speakers; *r r*, the orchestra; *s*, the organ.

The ground allotted for the hall being only just the length required for the great room itself, the architects were obliged to project the basement, at the principal entrance end, over the

*Geometrical Elevation of the End next to Paradise Street.*

causeway or footpath, leaving a public arcade at that end within it. This has rather an injurious effect; as the building, in consequence, seems to encroach too much upon the street. In the design originally presented to the committee, which was made by Mr. Hansom, it was proposed to have the side of the temple towards the street, into which the pediment now looks; and that the general plan should form the outline of the letter T, having the temple part merely at one end, and the great room projecting backwards out of its centre: but, in consequence of this arrangement requiring more breadth of ground than the commissioners felt disposed to allow, the plans were returned to the architects, with instructions not to occupy more than a fixed breadth. The architects were, in consequence, forced to adopt the present design of the building; which was one jointly produced by Messrs. Hansom and Welch, two years before, and which was intended for Fishmongers' Hall, London.

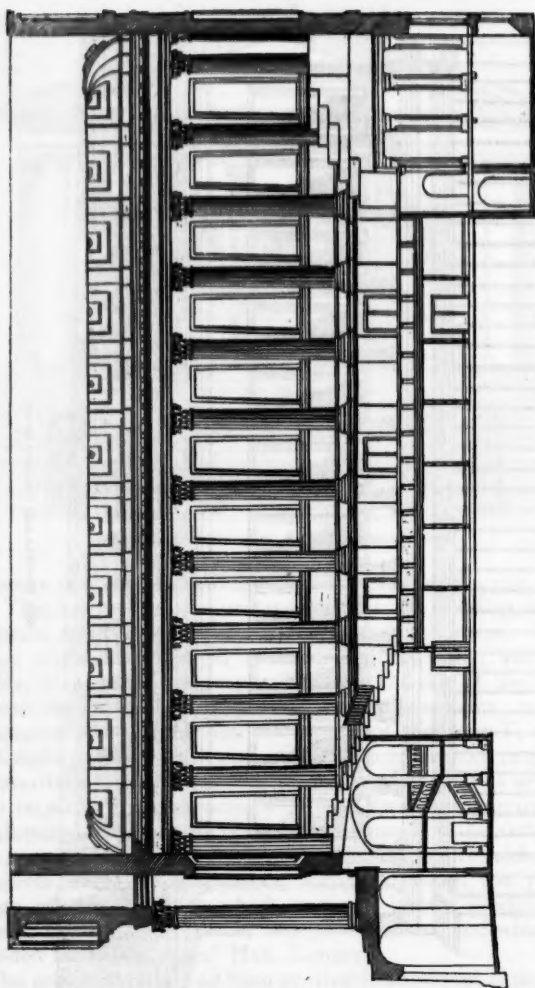
The architects, who had been previously employed extensively in Anglesea, having observed the remarkable beauty of the Anglesea marble when worked into buildings, made bold to recommend to the committee the adoption of that stone as being superior to anything known in the country; it absorbing no dirt, but gradually becoming whiter with age; and being also imperishable by time. This recommendation was attended to by



Side Elevation next Congreve Street.

the committee; but its adoption, we are sorry to learn, has involved the architects and their friends in utter ruin.

After the adoption of the designs, contracts were advertised for, and finally agreed upon between the committee and Messrs.



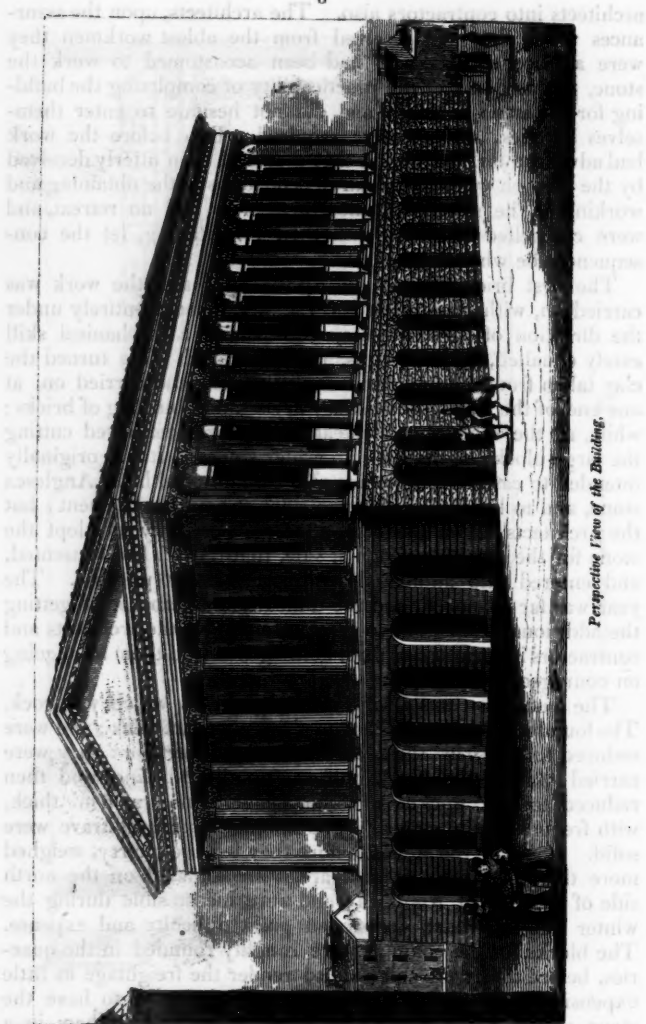
Longitudinal Section through the Hall, &c.

Thomas and Kendall, builders ; who had previously been employed by Messrs. Hansom and Welch, and who were introduced to the committee by them. In consequence of the committee feeling doubts of the practicability of the work being executed for the price agreed upon, they compelled the architects to become sureties to the contractors ; and thus literally made the

architects into contractors also. The architects, upon the assurances which they had received from the ablest workmen they were able to consult, who had been accustomed to work the stone, felt no doubt of the practicability of completing the building for the sum specified; and did not hesitate to enter themselves sureties, as they were required. But, before the work had advanced far, they found that they had been utterly deceived by the men on whom they had depended, as to the obtaining and working of the stone; but they themselves had no retreat, and were compelled to go on with their undertaking, let the consequences be what they might.

The first brick was laid in April, 1832; and the work was carried on, with great spirit and rapidity, almost entirely under the direction of Mr. Hansom, who evinced a mechanical skill rarely equalled, and, perhaps, never excelled. He turned the clay taken from the foundations into bricks: and carried on, at one end of the room, the making, drying, and burning of bricks; while, at the other end, a steam-engine was employed cutting the large blocks of marble into ashlar stones. It was originally intended to case only two sides of the building with the Anglesea stone, and to leave the other two sides of brick and cement; but the architects urged the committee so repeatedly to adopt the stone for the other longitudinal side, that they at last consented, and entered into additional contracts for that purpose. The year was far advanced, and the difficulty and expense of getting the additional stone were so great as to involve the architects and contractors in serious loss; but nothing deterred them from going on courageously and well.

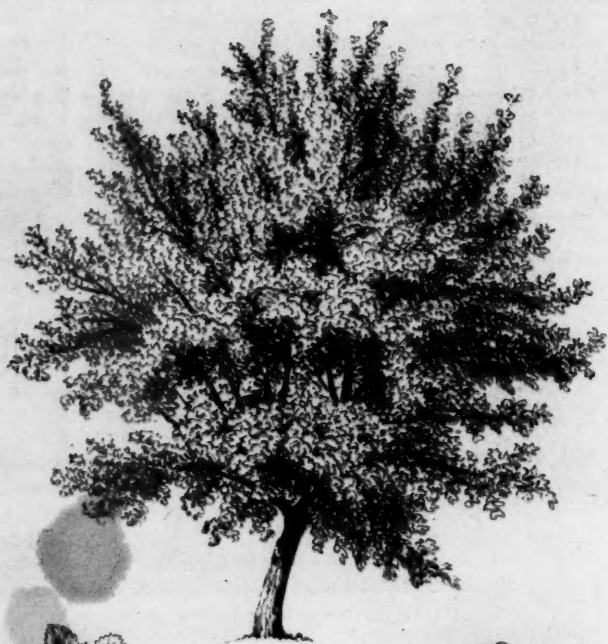
The foundation was a solid hard clay, below which was rock. The foundation walls were begun about 5 ft. 6 in. thick; and were reduced to 3 ft. 9 in. thick at the level of the floor: they were carried up 3 ft. 9 in. thick half way up the building, and then reduced to 3 ft. thickness. The ashlar stone was 6 in. thick, with frequent bond stones. The columns and architrave were solid. Some of the stones, before they left the quarry, weighed more than 100 tons. The quarries are situated on the north side of the Isle of Anglesea; and were inaccessible during the winter months, which occasioned great difficulty and expense. The blocks for the columns were roughly rounded in the quarries, before they were shipped, to render the freightage as little expensive as possible. It was originally intended to have the stone worked in Anglesea, and brought to Birmingham in a finished state; but, in consequence of the parties with whom agreements had been made failing to carry those agreements into effect, the architects were obliged to get the work done under their own eyes, at Birmingham, and almost to educate men for the purpose. The stone is remarkably hard in its

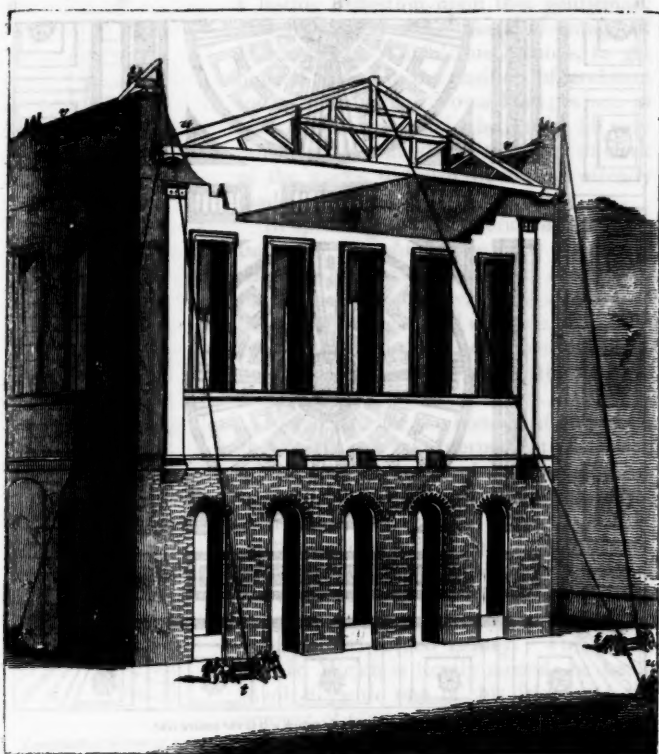


nature ; but it is capable of being worked into the most beautiful mouldings and foliage : and, when thus worked, it exhibits an effect exceeding anything we have seen.

The principals of the roof were hoisted in a very ingenious manner, in January, 1833. *Fig. 7.* represents a principal in

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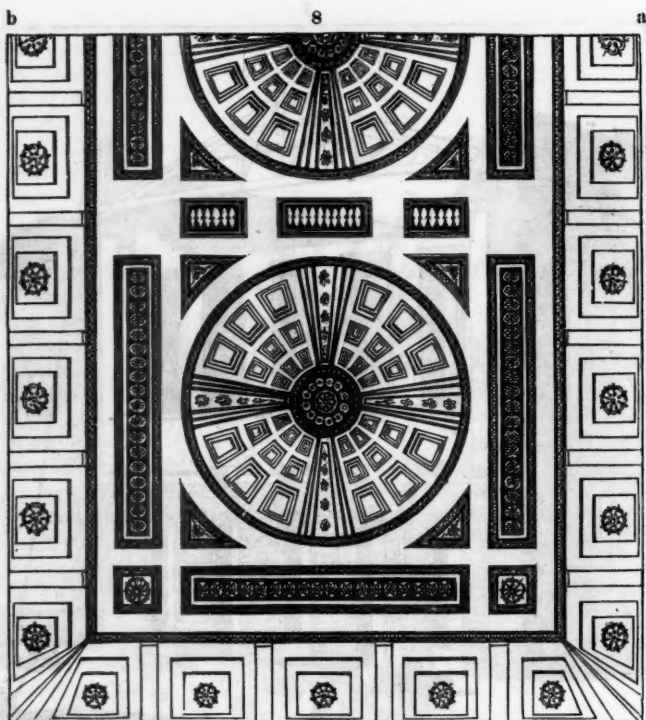


Method of raising the principal Rafters of the Roof.

11, Ropes which are attached to the ends of the tie-beam, and pass through pulleys, for hoisting one of the rafters; *u u u*, stays for steadying the rafter in its ascent; *v v*, cranes, on rollers, for carrying it along the wall to its proper situation.

the act of going up. This principal is of good construction, and possesses some peculiarities worthy the attention of the scientific reader. During the raising of the principals, an accident occurred by the breaking of the hook of the pulley-block, which in consequence, let fall the principal which was suspended to it, and, by the jerk, threw three men from the top of the walls to the ground, a height of nearly 70 ft. One valuable workman was killed upon the spot, and another died, after being a few weeks in the hospital; the third is now recovered from the effects of his fall, and is a living testimony of the skill of Mr. Alfred Jukes, the surgeon of the Hospital, who attended him.

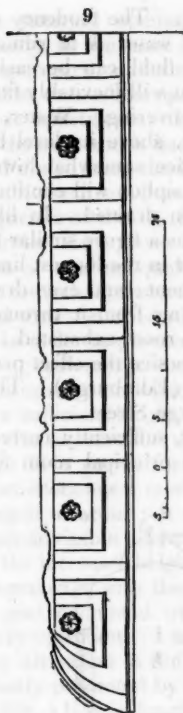
The interior of the room is beautifully finished in plaster, in the same style as the exterior, having a bold Corinthian pilaster



Plan of part of the Ceiling, in which a b is the centre line.

between each window. The room has a great gallery (*o*, *fig. 2.*) at the principal entrance end, capable of seating about six hundred people, and small side galleries (*p p*) projecting about 9 ft. from the walls. The other end has a large orchestra (*r*) surmounted by one of the finest organs in the world, built by Mr. Hill (late Elliot and Hill) of London, which will do him lasting credit. The whole accommodation amounts to 3500 persons.

In consequence of the increasing difficulties of the architects, and from their having exhausted all the means they were able to command, without receiving sympathy from any quarter, they were compelled to submit to a bankruptcy in the early part of 1834; and the committee, hoping to benefit by other assistance, called in Mr. Foster of Liverpool, to consult him as to the completion of the work. We are not able to give the reason why Mr. Foster deemed it necessary to offer his own services for the finishing of the work, when he had expressed himself satisfied that it had previously been skilfully and well done, and it will remain



*Longitudinal Section of a part of
the Ceiling.*

a lasting reflection upon that gentleman, that he should have taken advantage of Hansom and Welch's misfortunes, to get himself placed in the position of architect to the Birmingham Town Hall; when, in fact, it was impossible he could fill any other part in that edifice, than that of clerk of the works, to finish the designs already made.

In speaking of the general effect of this building, we should be only repeating what has been said of nearly all the beautiful temples of antiquity. It is a revival of the age of Pericles, and will give permanent renown to its authors, and raise Birmingham high in estimation among the towns of England.

We trust, for the honour of the town, that it will not take permanent possession of the building, without instituting an enquiry into its value, and doing something towards redeeming the position of the parties who have been ruined by it. Hansom and Welch, we are informed, have lost three years of their time, and fourteen hundred pounds of their previously hard-earned money. The family of Mr. Welch is totally ruined, he being involved with one of his friends to the amount of 6000*l*. The building will bear the closest test of examination as to design and execution; and no expression but of

applause and satisfaction has been used towards it. We understand it is the intention of the unfortunate sureties to get the building, when it is completed, valued by some eminent architect, whose judgment cannot be called in question, and, on the ground of that valuation, to make a public appeal for assistance out of their difficulties, which, we trust, will receive every just attention; as the only stain upon the building is the ruin of the parties who have erected it.

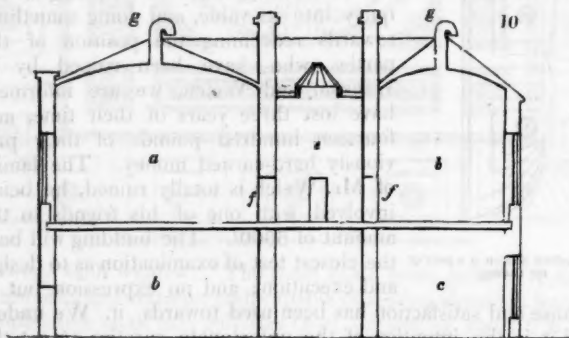
ART. VII. *Observations on some of the Causes of defective Ventilation, and of Smoke in Public Rooms and in Dwelling-Houses.*
By JOHN MILNE, Esq., Architect, Edinburgh.

VENTILATION and the performance of flues depend upon circumstances so similar, and affecting each other so much, that

they ought not to be considered separately. The tendency of heated air is as strong to ascend, as that of water is to run in a contrary direction: but, while the latter fluid can be easily prevented from sinking to a lower level, heat will inevitably find its way through the strongest and thickest covering. Water, it is well known, can be made to rise 30 ft. above its level by means of a bent tube, having its under orifice somewhat lower than the fluid to be put in motion; and the siphon will continue to run until the last drop of water has been drained. In like manner, wherever a suite of apartments forms a figure similar to the siphon inverted, the buoyant mass of air in the longest limb must exhaust the air from the lower apartment; and even drag (if the word may be used in that sense) the air from it through rooms or passages far below the level of the room exhausted.

In support of what I have stated, I shall notice the effect produced in two public buildings in this city (Edinburgh). The first is that in the Assembly Rooms in George Street.

Fig. 10. is a cross section of the rooms, sufficiently correct for my purpose. In this sketch, *a* is the principal room for



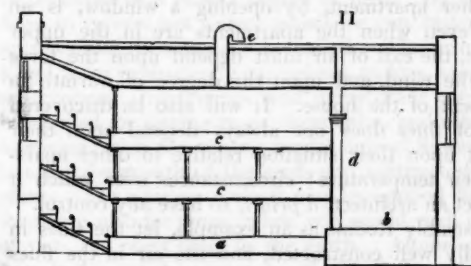
public meetings, and *b* is another room for lectures, &c.; but, when occasion requires, they can be both thrown open to the same company. The roof of *b* is somewhat lower than that of *a*; but the exterior orifices of the ventilators (*g g*) are nearly on a level. When both rooms are in use, and the intervening door is open, the room *a* is not properly ventilated; its warm air descends, and, passing through *f f*, fills the apartment *b* almost to suffocation; while, at the same time, cold air rushes down the ventilating passage in the roof of *a* so violently as to extinguish the lights.

Now, it may be said that there is nothing here in the shape of a siphon; that the rooms are upon the same floor; and that

the external openings of their ventilators are nearly, if not exactly, at the same altitude. They are not, however, of equal temperature; and that is an equivalent to a siphon, at least it makes one. The space *c* is occupied as living-rooms and other close apartments; the space *d* is a sale shop, continually open to the air; and it has, also, glass all round. The apartments *a* and *d* also front the north; *b* and *c* the south. In *a* there are, in all, seven windows; and in *b* there are only three: the consequence of this is, that the roof, walls, and floor of *b* are always warmer than those of *a*; and this, acting on the air within, makes it of unequal buoyancy; while the current, being thus set towards *b*, that room receives all the heat generated in *a*; and thus the siphon is made out most effectually.

In order to prevent these evils, it is in the contemplation of the proprietors to conduct the air from the roof of the room *a*, in a tube, to an adjacent flue; and either to carry up this flue to a sufficient height, so as to give buoyancy to the air within it, or else to surround the ventilating tube with the flue of a furnace kept in a garret for the purpose. The former would be the most economical method; and it would require no attention to keep it in action; it would also be, in every other respect, the most advisable alteration, if the neighbours were not to object to the increased height of a chimney top. Either of these arrangements, with the addition of an equalising ventilator, so as to give command over the rate of ventilation, would remove every objection. I may mention, however, that, independent of any alteration in the present mode of ventilating, it would be greatly promoted by allowing a greater flow of cold air into *b*.

Fig. 11. is a longitudinal section of the Edinburgh Theatre Royal. I have made the sketch merely from recollection, as at



this season the house is shut. In this figure, *a* is the pit; *b*, the stage; *c c* are galleries; and *d* the place of the curtain. The end (*b*) of the house fronts the south. The roofs and open-

ings above the stage are much higher than those above the pit. When the curtain is drawn up, the heated air in the theatre rushes into the space above the stage, and thereby causes a partial exhaustion within the lower part of the house, which permits the heavier air without to rush down through the

ventilator (*e*), and to extinguish the lights that are immediately below it. Again, whenever the curtain is let down, there is a sensible want of ventilation; because, although, at that time, a slight degree of air may penetrate through the curtain, it is not sufficient; and the only use of the ventilator (*e*) seems to be to blow out the lights. I do not think, however, that the tube of the ventilator, at any time, passed at once from the roof to the ceiling, as in the drawing, but from the roof only; which makes bad worse, as, in that case, the vitiated air becomes cold between the ceiling and the roof previously to its expected exit. At the present time, the ventilators seem to be large openings in the roof in the form of storm-head or garret windows. Indeed, although the worthy manager were to make as many ventilators as his purse could admit of, he would not be able to obtain proper ventilation, unless he carried up the ventilating tube to a height far above every other part of his open house; or else made it the envelope of the flue of a furnace in some one of the chambers near the top of the building. This, with an equalising ventilator, would give him complete control not only over the ventilation of the house, but over the feelings of his audience; and were he to wish, at any time, to increase, at no expense, the effect of his exhibition of the poisoned cup, or the dagger, he could do it nicely by letting down the damper.

We have, in this instance, also, evidently a siphon. The chamber *b* occupies only the middle of the house, with tiers of close apartments on each side; it is therefore naturally warmer than the body of the house, which is also much lower; it thereby causes the current to flow into *b*, and, by increasing its temperature, causes it to draw more strongly. From what has been said, it will be obvious that any attempt to ventilate a bedroom, or any other apartment, by opening a window, is an absurdity; that, even when the apartments are in the upper story of the house, the exit of air must depend upon the force and direction of the wind, and upon the degree of warmth in any other apartment of the house. It will also be discovered that the action of flues does not always depend upon their construction; but upon their situation relative to other apartments, and to their temperature; circumstances over which it is absurd to expect an architect, *a priori*, to have any control.

Taking the Assembly Rooms as an example, let the flues in *a* and *b* be equally well constructed, and the air in the flues kept at an equal degree of buoyancy by equal fires; still the two flues would not act at the same time; for, the air in *a* being exhausted by the rarefying power of *b*, it would also exhaust, and so entirely prevent the action of the flue in *a*.

In conclusion, I hope I may be permitted to state that these subjects, in connection with warming (which, by the way, admits

of many improvements, both in point of economy and efficacy), are of such a nature that no prescription for them can be given so as to suit every case. On the contrary, they can only be entrusted with safety to those persons who have made them their study, and are able to suit arrangements to existing circumstances. Architects are not, in general, to be employed: their whole study is only to produce proper effect, strength, and fitness of design.

James's Square, Edinburgh, July 8. 1834.

ART. VIII. *An Account of the Origin and Progress of heating Hot-houses and other Buildings by the Application and Circulation of Hot Water, instead of by Fuel or Steam.* By GEORGE COTTAM, Esq. F.H.S. Z.S., Associate Member of the Institution of Civil Engineers.

(Continued from Vol. I. p. 367.)

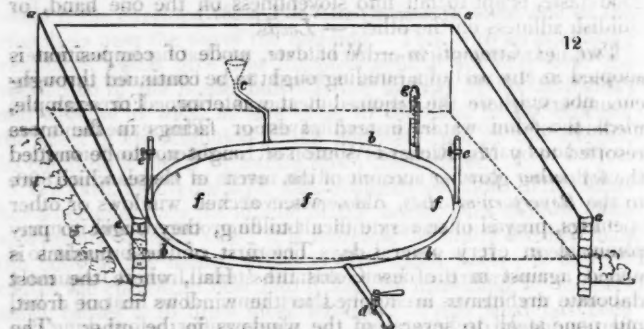
THE next attempt, in order of date, at heating by hot water, appears to be an apparatus applied to a frame for growing cucumbers, where the required heat was obtained through the medium of hot water, instead of dung. This expedient was resorted to by Mr. Richard Weston of Leicester, who forwarded the following glowing account of the merits of his plan, in 1800, to the *Repertory of Arts*, old series, vol. xiii.

"Hot dung is often very difficult to be procured, and in many places dear. It is several days before it can be brought to a proper temperature of heat; and the steam from it frequently destroys the plants in a very short time. The heat of a bed often suddenly declines; and the plants suffer before dung can be procured of a proper degree of heat. By forming beds with flues to receive hot water, assistance can instantly be given by only waiting till water can be boiled. The principal use of such a bed is for raising early cucumbers, melons, asparagus, radishes, mushrooms, strawberries, and many other vegetables. It may be applied for forcing roses, hyacinths, and other flowers, early in spring; also for raising tender annual flowers, and for accelerating the growth of the seeds and cuttings of valuable exotic plants. On a larger scale it may be applied for forcing-houses for fruit; also for pines, when you would wish to turn them out of pots and plant them in the earth. Alpine strawberries may be raised in all the winter months, and the other sorts early in spring. One hundred and eighty plants, at 6 in. asunder, may be planted in a frame of 9 ft. long. Its particular merit consists in its enabling you to apply any degree of heat you please to the roots of plants while growing, without disturbing or scorching them. In small gardens it is particularly useful; it

avoids the litter and dirt always attending hotbeds made of dung, and will be worth two thirds of its first cost.

"This is calculated for a 9 ft. frame: the pipes will contain about 7 gallons, and only require to be filled for the night; except in case of a cold day, and then it will require to be filled again in the morning. From observation, it is found that the plants grow more in the night, from the admission of the steam, than they do in the daytime, as it acts upon them as a natural warm dew. The flue should be covered with earth, about 8 or 9 in. thick, but at first only that depth near the plants, and then by degrees, all over the bed, as the plants extend themselves. A small thermometer should be placed 6 in. deep in the earth, which will always inform you of the heat of the bed; and it should stand at about 90°.

"Fig. 12. shows the plan of a hotbed with a water flue. *a a a a*, A hotbed frame of three lights, 9 ft. long. *b b b*, An



oval leaden pipe, 3 in. diameter, to be placed in the centre of the hotbed, and filled with boiling water towards evening. *c*, An upright pipe, 1 in. diameter, to fill the oval pipe. *d*, A pipe, 1 in. diameter, to draw off the water when cold. *e e*, Two pipes placed upright, 1 ft. long each, 2 in. diameter, to let the air out while filling, and to warm the bed with hot steam, when necessary, and with a cock to each. *f f f*, Three cucumber plants under each light. *g*, A thermometer, placed 6 in. in the earth.

"A thin board, 3 in. broad, full of holes, must be laid upon the flues [pipes], to prevent the roots from being burned by touching the leaden pipes."

In the same volume of the *Repertory*, a correspondent at Hampton Court recommends the growing of pines, and gives instructions for building stoves for that purpose, with the following directions for heating them by the circulation of hot water: —

"In building the stove, it will be a great improvement to have a cast-iron stove and boiler placed over the furnace; at least a boiler, to supply a water flue or two, which in spring will be found very convenient for raising cucumbers, melons, strawberries, &c., also a pit for the succession of pine plants."

In a note, a reference is made to Mr. Weston's plan.

ART. IX. *Architectural Maxims.*

THE Simplicity which is the result of study and cultivation is the very reverse of the chilling nakedness produced by the absence alone of greater decoration. True simplicity is rather heightened than diminished by attentive finish. Without this latter recommendation, it is apt to degenerate into meanness, in the same manner as mere simplicity of language, unaided by good taste, is apt to fall into slovenliness on the one hand, or childish silliness on the other. — *Leeds.*

Unity of Composition. — Whatever mode of composition is adopted in any part of a building ought to be continued throughout, not only the elevation, but the interior. For example, when the windows have architraves or facings in the more conspicuous parts, facings of some sort ought not to be omitted in any other part of the elevation, even in those which are comparatively obscure. Also, when arched windows or other openings, prevail in one side of a building, they ought to predominate in every other side. The first of these maxims is sinned against in the new Goldsmiths' Hall, where the most elaborate architraves are applied to the windows in one front, and none at all to several of the windows in the other. The second is equally sinned against in the General Post Office; all the openings of which, in the grand entrance front, are square-headed, while many of those in the back front are arched. Where arches are employed to cover openings in a building, keystones, projecting and ornamented, so as to form conspicuous features, ought not to be employed in one part, and not in another, unless for some very obvious reason.

Chimney Shafts. — It is neither absolutely necessary always to show, nor to ornament chimney shafts in a dwelling; but, when they are shown, consistency, and the necessity of unity and force of expression, require that they should be shown conspicuously, and ornamented throughout; and that, when they are concealed, they should be concealed entirely.

Extraordinary Effects in buildings, as in landscape scenery, and in every other department of the fine arts, are beyond the reach of rules.

REVIEWS.

ART. I. *Beytrage zur Ästhetik der Baukunst, &c.* Von J. H. Wolff. *Æsthetics of Architecture, &c.* Gr. 8vo, mit 28 kupfertafeln. Leipzig, 1834.

A WORK like the present, substituting liberal enquiry for pedantic superstition, and sound criticism and reasoning for blind and indiscriminate admiration, has long been wanted. The volume is, it appears, intended as the precursor of another treatise, in which the same analytical investigation will be applied to different styles; consequently, the author here confines himself to the examination of Grecian architecture. The scope of his enquiries is excellent; nor is the publication itself by any means ill-timed, there being evidently a disposition abroad to abjure many points of doctrine hitherto regarded as both irrefragable and satisfactory, and to adopt more enlightened views. Up to the present time, as the author himself remarks, scarcely any attempt has been made to elucidate, consistently and at length, the *principles* and real *æsthetic motives* of ancient architecture, by clearly showing how the whole of it has been developed in perfect accordance with them: even allowing that such accordance might occasionally be unpremeditated, the result of coincidence rather than intention, or, at any rate, arising from intuitive taste rather than calculating forethought.

While others have contented themselves with pointing out tolerably obvious beauties and analogies, or have not so much laid open, as insisted upon, the merits they ascribe to Grecian architecture, Professor Wolff has endeavoured to penetrate into its very arcana, its innermost spirit, to reveal all the more latent, yet not, on that account, less influential, causes of its harmony and grace.

Until these are investigated and understood, until we have ascertained not the *rules* but the *principles* which directed the Greeks, in vain do we strive even to approach them. We may copy, but we cannot imitate, them; we may produce, mechanically, a likeness as to particular parts, yet it will be one devoid of feeling, intelligence, vitality. Neither have we any clew whereby we may guide ourselves a single step farther, in the same direction, where the positive authority of antiquity fails us. With very few exceptions, the great and inherent vice of modern "Classical" architecture has been, that we are content to produce mere compilations of detached beauties, scarcely ever consistently with the true character of the style professedly aimed at; and, not unfrequently, so as to form the most heterogeneous combinations.

There is much instructive and ingenious reasoning in M.

Wolff's book; with, occasionally, some that is likely to be deemed, in this country at least, too refined and speculative; yet which, nevertheless, tends to bring out many occult points highly deserving consideration. Among them we may instance what certainly never struck us before, and what he assumes to be a law governing intercolumniation; according to which, a series of columns was made to exhibit a succession of squares or intervals blended together. Without the accompanying plate, we cannot hope to explain this very intelligibly; yet may remark that this system gives the height of the column as the measure from the axis of one column to that of some other. For instance, supposing the fourth column to be placed at that interval from the first that produces the first square; the second and fifth, the second square; the third and sixth, the third square; and so on. Or, should the intercolumns be desired narrower, the first and fifth, the second and sixth columns, must have their centres as wide apart as the columns are high.

In opposition to Vitruvius and Vitruvianists, the professor contends strongly (we might say, proves) that the forms of Greek architecture are derived from constructions in stone, not in timber; which latter, he convinces us, must have led to very different modifications, and altogether another system.

Beyond giving this slight indication as to its subject and contents, we cannot now continue our remarks on Professor Wolff's book. Were we to attempt any more, we should certainly be seduced into writing a longer article than could be admitted into the present Number. We are of opinion, however, that we have said quite sufficient to show the important object the writer has in view, and how exceedingly valuable an addition his volume is to what we already possess in architectural criticism. It is not a mere elementary work, but one to be perused, or, we ought rather to say, carefully studied, by those who are already tolerably conversant with the mere *matériel* of Grecian architecture. At the same time, it is calculated to prove essentially beneficial even to mere beginners, if taken up as an auxiliary to their other studies; because it will prevent their imbibing errors, afterwards to be discarded; and because, while it will serve to impart a higher relish to what they learn, it cannot fail to produce most useful habits of rational enquiry and investigation. This scanty notice of it will suffice to call the attention of those to the book who can peruse it in the original; and, should we have reason to think that a farther account of it would be acceptable to those who cannot, we may probably return to it, and give some translated extracts from it.

ART. II. *Of the Resources of Design in the Architecture of Greece, Egypt, and other Countries, obtained by the Studies of the Architects of those Countries from Nature.* By H. W. Inwood, F.S.A., Author of a Treatise on the Erechtheion at Athens, and on Fragments of Athenian Architecture, &c.; Architect, jointly with W. Inwood, sen., to St. Pancras church, Camden, Regent Square, and Somers chapels. 4to, 12 pages, 3 plates. London, Williams, 1834.

THIS work deserves to be favourably received by all philosophical architects; because, whatever may be the merit of the author's hypothesis, he has ventured to think for himself, and to recommend to others the study of nature in conjunction with that of the remains of classical antiquity. He might have brought forward his ideas with much greater force and effect, had he been a greater master of language, and capable of placing himself in the situation of those who know little of art. Without either assenting to, or dissenting from, his suggestions that the flutings of Doric columns were taken from reeds, mineral crystallisations, or marine shells; or that the mummies of Egypt were wrapped up in imitation of the cocoons of moths, we may be allowed to say that he has not brought forward his hypothesis in such a manner as to invite the reader to become a convert to it. However, we accept it with friendly feelings; and, to do Mr. Inwood justice, we shall quote a few of his introductory paragraphs:—

"We cannot contemplate with too high an admiration the beautiful productions of the ancient architects of Athens and the states surrounding: and, possibly, we might aspire to elevate ourselves to the same high intellectual perfection, by zealously emulating to discover, and to pursue, the course of study by which those architects advanced.

"The architect of those periods, it may readily be inferred, had one path, that led, at least with certainty, and probably with little difficulty, to excellence. His first preparatory steps were assuredly to pass in regular order, and to obtain complete knowledge of whatever valuable acquisitions in taste and genius human intellect had carefully and selectly stored, and arrived at, in the formation of Greek architecture up to his own time; he became then prepared to enter on the science of obtaining further perfection, by his own researches, at the highest resource of art then opening to his view; which the several productions of nature, in all ages, presented and displayed, not only to the ancient architects throughout Greece, but occasionally to those of other countries.

"Although those resources forming the means of perfecting the study and science of architecture lay to us through a new and unexplored territory, it soon evinces itself (taking either of the pure examples of architecture, as of a temple of Athens or Eleusis, &c.) that the minerals in the rock on which it stands, gave its architect a type for its cubical and geometrical details; the shore nearest adjoining produced shells, of beautifully varied carving, that gave the embellishments of the shafts of the columns, of the capitals, and of the roofs. The plants on all sides surrounding, the rose, the acanthus, the honeysuckle, the lily, the olive, the vine, and the ivy, gave details of its enrichments; so that it stood in beautiful harmony with the surrounding scenery: not at variance with the ever-admirable designs of nature's embellishments, but formed as to be united in one harmonious series with them.

"An instance, tending to exemplify this, occurred to myself. While

landing in Greece, perceiving groups of the echinus on the little projections of rocks on the shore of the Corinthian Gulf, the sea just covering them, the shore, at the same time with containing these living examples, a little further distant in the same view presented their representation in stone, in the bold echinuses of the capitals of the very ancient Doric example of Corinth; those of Athens, and other examples, being carved from beautiful varieties of the same. To other examples of shells I could collect in Athens, and different parts of Greece, the resemblance was complete in different details of the Erechtheion, the Parthenon, and other examples. The cliffs, the mines, and quarries, while obtaining the precious metals, jewels, and varied marbles, open to view the geometrical forms and beauty of the mineral kingdom: which are, however, on some occasions, self-evident, without research; as I observed extending over a considerable surface, and skirting the pathway of our mules in travelling from Megara towards Delphi, an interesting display of mineralogy, emanating from, and decorating, the exterior of its native rock, in the usual hexagonal but large and fine quartz crystals, glistening, and reflecting a dazzling intense light from the sun: a beautiful example of geometrical form, as adopted in the hexagonal altar at Delos.

“But the philosopher and the accomplished artist of ancient Greece would not select his type for study from limited nature, as only immediately surrounding him; but, expanding his resources throughout all the countries bordering on the Adriatic, the Black, the Mediterranean, the Red Sea, and the ocean, would combine into one view a rich store, to enable him to add such other varieties of those examples that had been selected in the productions of Asiatic and European Greece, as to render his own works of art a varied and beautiful series, in accordance to the more complete and varied series of examples a more extensive view of creation presented to his knowledge.

“In opening to the volume of nature’s designs, to develop the resources of study of the ancient architects of Greece and the surrounding countries, we trace the different sciences comprehending the natural history of those countries as yet have been but partially investigated, and even must remain, in a measure, lost and unknown to us; for how could the botanist and entomologist of the present day, from the plants, flowers, and insects they would now find in the too frequently barren and deserted wastes, declare the beautiful varieties that all those delightful climates and countries produced, when in their highest cultivation? or the mineralogist, from the mines he now sees there everywhere deserted, what interesting specimens, at the periods of those nations flourishing, were obtained? Perhaps, the most irretrievable branch of the Grecian science of natural history is that of the mineral kingdom. We are, perhaps, never again likely to explore the veins of minerals in the precise same spots that they did; and the same may also be considered of the fossil kingdom, the interesting specimens of the different strata they may everywhere have discovered are to us almost unknown. Nor can the conchologist better decide on that branch of natural history, the specimens that, in time of research, were everywhere collected, when all those nations cultivated and encouraged, for their own consumption and manufactures, and for commerce, the shelly produce of their seas and rivers.

“We need not, however, only seek to cultivate a knowledge of the studies of the ancient architects of those nations, by placing their works in comparison only with those everywhere surrounding them in nature, throughout every locality they could have access to: as, even on cursory observation, we perceive the harmonious similitude of nature’s productions, between those in one locality and those in another.

“And it must be to us a clear inference, and produces a convincing and unerring guide at the present day, that, wherever we perceive a representation of any plant, or of any maritime or mineral production, now known to us, among the sculpture of the Greek ornaments, that it was certainly a pro-

duction of nature they were acquainted with, and which aided them in deriving their science. And these representations of sculptured embellishments we find, as we proceed, throughout the far greater number of their works, in design of flutings, of carving, and of every component part of architecture, are so precisely the designs that nature, in various examples and localities, present to our view at the present day, as would permit our inferring that those we have could be the precisely similar specimens to those they possessed. In all such remaining instances where the prototypes that our knowledge of nature's productions present to us are a close but not a perfect similitude, we might, from such reason of similitude, infer that they had other varieties of the same, that presented to them prototypes nearer in design to their works than those at present known to us.

"Thus, by a careful investigation of every ancient production of embellishment of architecture in Greece, and even in comparative instances of Egypt and other countries, and taking the whole range of the beautiful productions throughout nature we are acquainted with, we should be enabled to discover and to select all the prototypes in unison with which the numerous and variedly beautiful examples of design in architecture were produced. Their course of study may, possibly, by these means, become ours; and we might, then, emulate to produce other and equal varieties of design to the architects of those periods whose works so justly merit our wonder and admiration as the noblest refinements of human genius and taste."

Plate 1. contains outline plans and elevations of the shafts of Doric columns. The first of these is three-sided, and is supposed to be an imitation of the "angulated reed;" by which, we suppose, is meant the flower stem of the papyrus. Other examples, of from four to twenty flutings, are all supposed to be from the genus of shells named *Dentalium*. A few words are given on each of the flutings; and, of the twenty-first, it is observed, that "those *dentalia* whose shafts are plain, and are fluted only near the top; the number of the flutings in one fossil species is twelve, in the common recent species they appear to exceed thirty flutings."

Plate 2. "Of the flutings of Doric columns. Several types of Doric fluting are given; in others, specimens of shells, that do not in themselves take the form of a column, as the *dentalia*."

Vignette 1. "Of Egyptian obelisks and pyramids.

"Occasional comparative evidences, in vignette plates, we will select of those works of other ancient nations that appear as a part also of the designs given in nature.

"The upper division in the vignette is of various different crystals that are of the obelisk form; combining the several varieties together in one view, as also in one plate together, in place of representing, in separate plates and views, clusters of each.

"The two first, on the right hand of the view, are mesolite or needlestone; the acicular crystals of which are in long slender prisms, terminated by small quadrilateral pyramids, of a colourless shining lustre: they are often of much taller proportion of height, the shorter prisms having been selected for the present illustration. And mesotype, whose beautiful crystals are in several instances of larger diameter, present the same obelisk form.

"The four last, on the left-hand side of the vignette, are lievrite. In the specimen of lievrite, the nearest to the right, the crystals are opaque, nearly black, and most brilliant; they are acicular, the same dimension as the plate, with a small pyramidal apex, and slight indications of lines as fasciæ on the sides. This requires no other comment than to say that it is a most perfect

miniature type of the polished black marble obelisk of the Egyptians. The one next adjoining is a larger specimen: these are usually the most beautifully enriched by fillets and mouldings down each of the fronts, and of the slightest relief. The two outer instances are rhomboidal obelisks, with little variations in their termination. The first described example of *lievrite* is represented rising from three other crystals; in the specimen in my own cabinet of this, the crystals are everywhere dispersed over the portion of bed of their native rock: some lying along in every possible direction, and some seeming to be half raised, while others are entirely elevated on their base; in other instances, two are disposed horizontally, one over another (in imperfect crystals), like steps; while a third, in a perpendicular position, is emanating above them; which is itself again interrupted in its formation by the perfect crystal over it. Various other instances, on the same specimen, occur of one obelisk rising on horizontal and vertical portions of others under it; and some as if on one step, some on two; but a similar indefinite arrangement of crystals occurs in most specimens of crystallised minerals.

"The seven remaining crystals in the centre of the plate are of the oxide of tin: a part of these are somewhat increased in their proportion of height, to place them in better comparison with the other specimens. Some are of a reddish brown, and translucent; and others black and opaque. The common form of the crystals, as that of the crystals of *zircon*, is a quadrangular prism, terminated by four-sided pyramids. In one, the angles of the pyramid join over the centre of the sides of the obelisk; in another, the apex is terminated by an acute pyramid; in others, the acute pyramid takes a compound form of one pyramid rising on the lower part of another. The crystals of this mineral take, also, the form of the cube, its acicular crystals giving the obelisk and the cubical its plinth.

"The lower division in the vignette is of various different crystals, of the form of the pyramid, placing their several varieties of design into one view.

"The first small pyramid, on the right hand, is what is commonly called the *dog's-tooth crystal*; of carbonate of lime, of a yellowish alabaster appearance. It forms a pyramid of triangular base; each side of the pyramid is beautifully embellished by projecting surfaces. These are formed by other crystals, of the same triangular form, just emanating one before another, and lessening in exact proportion as to leave the most projecting one in the centre, the smallest, in the manner of a panel raised with different flutings, receding one from another, as a frame round it."

Vignette 2. "Of Egyptian sarcophagi and mummies; and of the symbols of Egyptian divinities."

"The same research to nature as would deduce from its resources the geometrical forms of the pyramids, and of the obelisks, and, with the same facility, every other geometrical figure that could be formed, would lead the Egyptian philosophers and artists to study, in the same source, for the sarcophagus and the mummies that the pyramids were to enclose. And it would require not much philosophical reflection to observe that the chrysalis of the insect kingdom seemed a state between one existence and another: and, by wishing to apply so beautiful a type to their own being, produced the prototype for converting, by bandages and painted decorations, the human body, as to resemble a pupa or chrysalis; under an impression of its awaiting, in that chrysalis state, its period of entering and rising to another existence.

The upper division of the vignette is of the mummies of such insects as the human Egyptian mummy bears the nearest resemblance to. The centre is a large foreign specimen of the genus *cossus*: it presents the effect of some of the most distinguishing features of the Egyptian mummy, the hood continuing down, enveloping the upper part of the figure; and which, in the example, has a beautifully defined ornament of fluting, as most of the Egyptian mummies have. At the lower part of the centre specimen of the vignette, on the right,

in a horizontal position, is another *cossus*, the species *ligniperda*. The larva of this moth, when it instinctively feels that it is about to prepare for another existence, most admirably, in mechanical art, carves out its small cylindrical sepulchral chamber, often in the trunk of the willow; it then prepares its strong casing, laying within its cell, and undergoes the process of its form to a mummy. A close similitude between art and nature thus presents itself in the columbarie scooped in the rocks for the human mummies: the one of the insect in wood, the other in stone; and each containing its mummy. I found an instance of one of these columbarie of the *cossus*, carved in the trunk of a willow, in a horizontal position, as in the plate; the head end of the casing of the pupa nicely adjusting itself to the entrance, and, in withdrawing it from its cell, leaving it tenantless: and, possessing myself of the specimen, I felt, more fully than I can describe, the force of the similitude, aided by the surprising resemblance to the human countenance of its features."

After several other paragraphs, the author concludes thus:—

"And, lastly, the entire front of the sphinx of the Egyptians seems to bear a surprising similitude to the small beautifully painted and silvered chrysalis of the *Cynthia cardui*. The last on the left hand of the vignette, in the face, the crowning of the head, the hood descending, and the junction of the head with the chest, as to render it a complete type of all those characteristic features that distinguish that famed and favourite example of Egyptian transformation, the sphinx."

We hope these quotations will induce the young architect to purchase the work, to examine the theory for himself, in connection with the plates.

ART. III. *Ornaments, drawn from Examples executed in the improved Papier Mâché, by Charles F. Bielefeld, Modeller, 18. New Road, Fitzroy Square, London; comprising Centre Flowers for Ceilings and Ventilators, Room and Window Cornices, Glass Frames, Mouldings, Brackets, Capitals for Columns, and Pilasters, Panels and Cornices for Walls and Ceilings, and various other Descriptions of Decorations.* By C. F. Bielefeld. 4to. London, Williams, 1834.

It is not, we believe, generally known, that many of the architectural ornaments, and even some of the members of architecture, both in public and private buildings, and in furniture, are executed entirely in papier mâché. This manufacture has recently been carried to an extraordinary degree of perfection, by the ingenious artist who has published this work; nor can we sufficiently express our admiration of his talents, or our satisfaction at the idea, that his works will be the means of inducing the most important improvements in interior architecture and furniture.

Many of our readers have seen the beautiful interior of the Pantheon Bazaar, Oxford Street, but few of them are perhaps aware that all the sculptured ornaments in that interior, including the rich cornices and entablatures, the consol and cantaliver projections, and all the alto and basso relievos are of papier mâché, by Mr. Charles Bielefeld. We believe the same may be said of all the principal ornaments in our theatres. In the inte-

rior finishing of houses, there is no other material in which the mouldings, cornices, and ornaments of the Gothic style, or the style of Louis XIV., can be executed at so little expense. We have lately had the pleasure of seeing this artist's atelier, where we found him modelling the royal arms, which are to be placed, in papier mâché, over the Speaker's chair in the new House of Commons. He is also preparing the ornaments which are to cover the openings for ventilation in the ceiling of that building; and all the Gothic mouldings, cornices, foliage, crockets, and pendants, which are to be employed on the walls and ceiling of the House of Lords, are now executing by him in the same material.

"To say, that, in this beautiful material, every subject may be readily produced which has been hitherto made in plaster or putty composition, would be very inadequately explaining its capabilities; for, not only can the artist in papier mâché infinitely surpass in boldness and relief works executed in those materials; but he can fully equal, in shapeliness and effect, the most elaborate wood carvings.

Of the durability of papier mâché, ample testimony is afforded by the surprising soundness of many of the old ceilings, &c., which, more than two centuries ago, our ancestors were accustomed to work in this description of material; whilst the many important improvements which the present manufacturer has introduced, both in its composition and manipulation, have greatly increased its solidity and strength; giving it, at the same time, a far higher degree of finish and delicacy than was formerly practicable.

It is necessary to add, that ornaments may be executed in papier mâché at the same price as in plaster; and are consequently considerably cheaper than similar works in composition. When, in addition to the advantages above detailed, it is considered that this material is extremely light, and may be fastened, with the utmost facility and despatch, to wood or plaster, by brads, needle points, glue, &c.; that it requires but little preparation for gilding, and admits of being painted immediately it is fixed; the practical man will have no difficulty in perceiving the advantages it offers; enabling the architect or decorator to undertake the execution of every description of interior embellishments, within an incredibly short space of time.

That the reader may be satisfied that these statements are not overcharged, the manufacturer begs to refer to a public work, of considerable extent, which he has recently executed. The whole of the enrichments at the Pantheon, in Oxford Street (unquestionably one of the most decorated buildings in London), are of papier mâché. Without any previous notice or preparation, Mr. Bielefeld was called upon by the architect to furnish all these enrichments; and the whole were accordingly modelled, executed, fixed up, and painted, within about four months, during the depth of winter. It should be added, that the building itself was raised with almost equal rapidity; there was, of course, an immense quantity of moisture in the walls and ceilings, which could only be dispelled by a degree of artificial heat, that would have proved the destruction of enrichments executed in any other material whatever.

The manufacturer has only to add, that the machinery he was required to prepare for the above-mentioned work, and the experience he acquired in combating the difficulties he encountered on that occasion, enable him now to undertake with confidence orders of any extent, within almost any prescribed time; and he is willing to execute models in every description of style and character, either from drawings furnished for his guidance, or from his own designs, without any extra charge." (*Preface.*)

ART. IV. *The London Upholsterer's Companion ; containing the most approved and Modern Methods for the various Styles of Manufacturing, including the Art of Spring Stuffing, with all its late Improvements, &c. &c.* By John Saville Crofton, Practical Upholsterer; from Messrs. Seddon, Morell, and Seddon, Upholsterers to the King. 4to, 89 pages, 13 coloured plates. London, Williams, 1834.

In the preface, the author takes occasion to state how much the upholstery business is indebted to the patronage it received from George IV. and the nobility of his time, owing to the continually varying taste and fancy of the connoisseurs of that day. In many of the larger mansions, he says, the changes in the fittings up, and furniture, were of frequent occurrence; and the taste and fancy of the owner required to be gratified every time they were changed. According to Quatremère de Quincy, both in his *Dictionnaire d'Architecture*, and in his introduction to the work of Messrs. Perrier and Fontaine on furniture, this craving for change is much more likely to corrupt public taste, than to improve it. Mr. Crofton seems to be of the same opinion; for he laments the want of such books of instruction, in regard to the principles of design in furniture, as will enable the beginner to form his taste in such a manner, as that he may produce, when required, something new, without at the same time exhibiting something absurd.

"It cannot be," he says, "that we have not had men capable of the task; for we have had, and at the present day have, men of the first eminence in this branch of trade—men perfectly capable of giving to the world the most valuable information and instructions; yet, true it is, that a manual of this description does not exist, although the want of it has always been severely felt by young men on their entrance into this branch of business, but by none of them more than by the author of this work, who has, consequently, been indebted solely to hard labour, and a careful and anxious attention to, and observation of, the best workmen during their work, for the knowledge he has attained; in which, certainly, he has been assisted by having had the good fortune to be employed in some of the first and most eminent houses of business in London, and by the heads and principal conductors of those houses at the royal palaces, and the mansions of the highest nobility and most influential of the gentry.

"It was this inconvenience, aided by the regret which the author felt at seeing the disadvantages which his young friends laboured under from the want of a practical work that could be relied on, which produced in his mind a conviction that such a work would be a valuable desideratum in the trade; and hence it was that he was induced, coupled with the solicitations of many kind friends, to intrude himself upon the public, and submit to their judgment the result of his experience.

"The methods and styles of workmanship which form the subjects of this work, have been laid down after the modes adopted by the first houses in the trade, as the most modern and approved, and hence their claim to attention: but, as what is the fashion of to-day may not be that of the morrow, the character of an upholsterer, as a man of business, requires that he should have fertile powers of invention, with equal taste in the application of those powers." (*Introd. p. x.*)

The work is divided into six parts: viz. I. Round-stuffed chairs, dining and drawing room chairs, pillow-stuffed and French-stuffed chairs. II. Easy chairs spring-stuffed, the gondola chair, the Montague chair, and pipe-stuffed chairs. III. Round-stuffed sofas, pillow-stuffed sofas, and spring-stuffed sofas. IV. Manner of making Turkish ottomans. V. Spring-stuffed mattresses, spring beds, spring pillows, carriage seats, and spring cushions, and utility of upholsterers making their own springs. VI. The Upholsterers' Ready Reckoner, and explanation of the scales for cutting and measuring draperies.

Our readers will see from this table, how valuable the work must be to practical men. The engravings are very well executed and coloured; and the work, taking it altogether, is well got up. It is published, we understand, for the benefit of the author's widow and children, he having died suddenly just as it was finished printing; and we sincerely hope that it will meet with that encouragement to which it is so justly entitled.

We have described the mode of spring stuffing, in our *Encyc. of Cott. Arch.*, §665. and fig. 704.; but we were not then aware of there being such a thing as pipe stuffing. This appears to be chiefly used for the chairs of hall porters. The mode of operation is described at length, p. 36.; but it will be sufficient, in order to give our readers a general idea of it, to state that it consists in putting the stuffing into vertical semicylindrical tubes of leather, which, when completed, give the inside of the chair a fluted appearance, like that of the front of an organ, or the back of Moser's fireplace (*Encyc. of Cott. Arch.*, fig. 1843.), but on a larger scale; the flutes or side pipes being three on each side of the chair, and five in the back. The chair given in illustration of this mode of stuffing, is said to be "an article rapidly coming into fashion with the nobility and gentry, for the use, as well as the comfort, of their hall porters, for which it is well calculated. On closely examining this chair, it will be found to be a complete piece of furniture for the purposes intended; it being understood that the duties of hall porters oblige them generally both to sleep and take their meals in the hall. To meet these exigencies, a convenient cupboard is contrived under the seat (as seen in the engraving), which will be found large enough to contain every thing usually necessary, or that can reasonably be requisite, both for the support and the comfort of this domestic. There is no piece of workmanship that requires more neatness in the stuffing and finishing, than the chair we are now speaking of, and to which the young upholsterer's attention is solicited." (p. 36.)

MISCELLANEOUS INTELLIGENCE.

ART. I. Domestic Notices.

ENGLAND.

THE Houses of Parliament are reconstructing temporarily on the same spot as they were before. The House of Lords is to occupy what before was the Painted Chamber; and the House of Commons is to be in what was the House of Lords. The walls of both chambers being entire, there are only the roofs to construct, and the interiors to finish. The work is proceeding so rapidly under the direction of Sir Robert Smirke, that there can be no doubt of its being completed by the time Parliament meets. We have elsewhere (p. 41.) noticed the papier mâché ornaments and mouldings, preparing for both houses by Mr. Bielefeld.

Keys of German Silver. — A friend of ours, Mr. Dundee of Wolverhampton, has applied a composition known as German silver, to the casting of ornamental keys. He has shown that the most beautiful Gothic patterns of keys may thus be produced, at less expense than they could be in steel, and also of a more beautiful lustre. It is supposed by some of the London upholsterers, that this application of the metal may be rendered available, not only for keys, but for many other articles in Gothic furniture, and in the style of Louis XIV., now coming into such general use.

A new description of Cooking Range has been invented by Mr. Weekes, of the Horticultural Repository, King's Road, Chelsea. It is founded on his mode of circulating hot water for the purpose of heating hot-houses and other buildings. The water is heated in pipes which pass through the body of the fire, and communicate with cisterns on each side of it, so as to cause the water in these cisterns to boil. In the cisterns are placed tin vessels containing water, which is also made to boil, by the tin vessels being in contact with the boiling water in the iron cisterns. Over the fire, and at a foot or more above it, when extensive culinary operations are required, is placed an iron plate containing basins with water, and in these are put tin vessels, either for the purpose of boiling or stewing. The advantages offered by this plan are two: first, the heat may be extended to almost any distance on each side of the fire, and at a boiling temperature; and secondly, the heat, whether over the fire, or at any distance from it, can never exceed the boiling point. For kitchens where cooking is carried on on a large scale, by means of stewing pans and hot hearths, this plan promises considerable advantages as a substitute for those means. We saw it in operation, when Mr. Gunter, the celebrated confectioner, and some eminent cooks were present, on the 7th of December.

Cornwall. — *A new Guildhall and Market Place* are about to be erected at Helston in Cornwall, from the designs of G. Wightwick, Esq., architect, Plymouth, who is also rebuilding the Grammar School in that town (in the Elizabethan style), and erecting a Gothic monumental arch to the memory of the late N. Grylls, Esq. — *B. Plymouth, Nov. 6. 1834.*

A large Chapel in the earliest pointed style is now erecting at Bude in Cornwall, at the expense of Sir T. D. Acland, from designs by Mr. Wightwick. — *Idem.*

Dorsetshire. — *Canford House, near Wimborne.* — Since I had the pleasure of seeing you, I have obtained from Dr. Buckland the address of the person I mentioned to you as a manufacturer of artificial stone — Mr. Easton, Canford, Wimborne, Dorset. The stone is made of sand and clay of the plastic clay formation near Poole. It is, Dr. Buckland says, a very sandy white brick, formed in moulds to the shapes required for Gothic windows, or other ornaments. Mr. Easton is steward to Mr. William Ponsonby, M.P. for Dorset, for whom Blore has built a new house of this material. — *W. C. Trevalyon. Wallington, Oct. 15.*

SCOTLAND.

Watt Institution, Dundee.—A subscription has lately been entered into here, for the purpose of erecting a lecture hall and museum for this Institution and some progress has been made in a collection of natural history, &c.; so that we are in a fair way to wipe off the stigma so long attached to our bustling town, for its want of encouragement to science.—*William Gardiner, jun. Dundee, Oct. 4. 1834.*

IRELAND.

Armagh Cathedral.—I am just returned from the extreme north of Ireland, and, on my way home, I saw the cathedral of Armagh, and all the singular operations which Mr. Cottingham the architect has been, and is, performing for its restoration. He has had the whole tower shored up, and put fresh groins under it; and is now going to pull the nave lines of columns together (they have started out at top), by the contraction of heated iron bolts. I hope to be able soon to send you an account of it, with figures of the modes of proceeding.—*Robert Mallet. Chapel-Street, Dublin, Oct. 30. 1834.*

ART. II. Retrospective Criticism.

ISOMETRICAL Projection, and Isometrical Drawing.—In the review of Mr. Sopwith's *Treatise* (I. 369.), it is recommended as being "by far the best, and indeed the only complete, work that has yet appeared on the subject." If we take into consideration the great quantity of practical information on mining and surveying; the scientific and mathematical illustrations by Mr. Nicholson; the real objects chosen to illustrate isometrical drawings, such as buildings, gardens, furniture, &c.; the admirably engraved plates, and indeed the handsome manner in which the work is altogether got up; it must be confessed that Mr. Sopwith's *Treatise* is most worthy of a place in the scientific library. But as a treatise on isometrical projection, apart from the other information, and the superior style in which it is executed, it is neither the best, nor yet the most complete, work on the subject. In judging of the quality of any production, we must consider it with relation to its price; and before Mr. Sopwith's *Treatise* can be said to be the best, it must first be shown that it is the cheapest in proportion to the information it contains: that this is not the case, may be seen by the sequel.

My first impression on seeing the book was wonder at what the author could have said to fill so large a volume; and, after carefully perusing it, I must confess, in justice to the student uninterested in plane geometry, who desires information on isometrical projection alone, that he will find many parts of the work too intricate for his understanding; and that in the sum of 16s. (the price of the book) he will have to pay for much information not essential to his purpose. For the information of the geometrical student, as well as to prove that the work (which, judging from the mathematical illustrations it contains, pretends to illustrate isometrical projection on scientific principles, and to do this correctly) is not the most complete work that has yet appeared, it may be necessary to point out the following defects.

All those who have a knowledge of perspective, and of orthographical projection, are aware that the former is projected on a plane by rays radiating from a point, the axis of which is perpendicular to the plane; and that the latter (orthographical projection) is projected by parallel rays which are all perpendicular to the plane. Mr. Sopwith has considered it advisable to dispense with the plane of projection, lest it should embarrass an artist in its application; but its omission has left nothing for the learner, by which he might detect the want of principle in the "verti-horizontal" and "verti-lateral" drawings, in a work containing much scientific disquisition. In the

first place, let us prove that the representations of figs. 4, 5, 7, 8, 10. and 11. of pl. xvii., and figs. 1. and 2. of pl. xxiv., are without any principle; and then show that Mr. Sopwith might have attained his wish — namely, to have one side of an object "showing a full view (or nearly so) of the upper surface, and a diminished view of the sides of a cube," by one method; and by another method, "showing a full view (or nearly so) of one of the sides, with a diminished view of the surface" — on principle.

Then, these figures are incorrect, for this very simple reason, that it is impossible for three faces of a cube to be shown by any projection whatever, if one face is represented geometrically, and the angles of that face are right angles; or, in other words, when the top and bottom horizontal lines of that face are parallel to the plane of projection. If the surface of that geometrically represented face were parallel to the surface of the plane of projection, one face alone could be seen, and the isometrical representation of that face would not be equal to the geometrical representation of it. Again, when the upper and lower horizontal lines of the face of a cube are parallel to the plane of projection, and yet the surface of the face forms an angle with the plane, two faces are seen; but in no case can three faces of a cube be seen, if any of the twelve boundary lines be parallel to the plane of projection: hence the want of principle in the figures above mentioned.

It is not necessarily inferred by the foregoing, that a cube in isometrical projection should always present three faces of equal surface, although this is the most rational method; but Mr. Sopwith could have attained his object on principle (an object which, he justly observes, "will frequently be found extremely useful," that is, to have occasionally the upper face of a cube seen more than one of the sides, and the reverse), by making the major diagonals of the three faces each of the same length, and placing them so as to form an equilateral triangle, and yet to have none of the boundary lines parallel to the plane.

Having discarded the "verti-horizontal" and verti-lateral" representations for their want of principle, we can now dispense with the parallel rulers No. 2. and 3. in Mr. S.'s book, as perfectly useless. Mr. S. has given us a ruler or triangle for drawing the left-hand lines, and another for drawing the right-hand lines. Why not turn over the triangle for the left-hand lines (No. 1.), and draw the right-hand lines with it? These triangular rulers, said to be invented by Mr. Sopwith, have been in use in Edinburgh these twenty years; and parallels with scales on the edges of them have been made by Mr. Harris of Holborn, as long as I can remember. Would Mr. S. point out what part of the invention he lays claim to?

Notwithstanding the beautifully engraved views of Chapheaton and Chesterholme in the book before me, yet there is a perfect contradiction of system in each picture respectively. If the buildings are orthographically represented, then their accompaniments could not possibly be radially represented — having the foreground objects large and dark, and the distant objects small and light, so as to produce the aerial perspective therein exhibited.

However much I may admire the mathematical illustrations and scientific disquisitions of Mr. Nicholson (and in common with every one else, I have no doubt but that he has rendered more benefit to practical science than any other living author), I cannot help remarking, that the scientific part contributed to the work by that gentleman is not, as stated in the review, "easily comprehensible by a person who knows scarcely anything of geometry;" and in my own opinion, Mr. Jopling's method, stated in the *Practice of Isometrical Perspective*, of making various sections of a cube, is far more intelligible to the non-geometrician than the (to him) hieroglyphics in Mr. Sopwith's book. The review says, "Mr. Sopwith shows, and indeed it is self-evident, that the term isometrical perspective is incorrect." This was shown and proved in the *Mech. Mag.*, in July, 1833. The manner of making isometrical drawings which Mr. S. recommends is far preferable to isometrical projection, from the facility it affords; but it had been previously noticed by Mr. Jopling in the

last page of his *Treatise*; and this isometrical drawing is not only, as stated in the review, "a certain proportional enlargement of some parts of the projection," but a proportional enlargement of every part of the projection. Indeed, an isometrical drawing of a house is nothing more than joining the front and end elevations, and the vertical profile of the roof, together; but instead of drawing the level lines horizontally, as in geometrical elevations, those of the right-hand elevation are drawn at an angle of 30° to the bottom of the paper, and the lines of the elevation to the left are also at an angle of 30° to the bottom of the paper, but the reverse way. Any one who will but make a trial, will find he can scarcely go wrong. The lines almost of themselves fall into their places, as nicely, by just moving the pencil, as any well disciplined troops fall into their ranks at the word of command.

In conclusion, it is gratifying to find that a method of projection, which combines the advantages of geometrical representation with an approximation to radial perspective, should now be viewed by professional men as claiming their best attention; and that the prejudices which long custom had deeply rooted in favour of other modes of representation should be now gradually vanishing; for it is a striking sign of the times, that we must now no longer retain customs for their antiquity, but for their utility alone. We must not, nevertheless, look upon isometrical drawing as forming a picture, but as a useful and most expressive mode of representation; and any attempt to combine with it aerial perspective presents too glaring an inconsistency to require further comment.

A concise and perfectly intelligible little treatise on isometrical drawing, so as to suit the plain working mechanic, divested of every possible technicality is still, yes still, wanting; and any person who should occupy more paper with the whole affair, than the size of six pages of the *Penny Magazine*, would rather mislead such persons, that is, unlettered persons, than guide them.—*J. R., Paddington, Dec. 8. 1834.*

Hints for a Critique on Blunt and Stephenson's Work (reviewed p. 371.).—In the first plate, the injection cock, steam and vacuum gauges are omitted. The injection cock is shown in plate vi., *FF*, and should have made a prominent object in plate i.; particularly as there is no plate showing the air-pump and condenser at large, which is somewhat odd; and, indeed, it is an omission of importance, as both ought to have been inserted before the hot and cold pumps in plate v. I cannot see why the packing and gasket joints are omitted to be shown in plate iv.; the packing is shown to the piston, but not to the stuffing box: and the same remark applies to nearly all other packings. As a practitioner, we consider it essential to show the thickness taken up by the gasket and cement for the joints, which, in fact, is near half an inch; and, unless it is shown in the drawings, it makes an important difference when the parts come to be fixed in place. I also object to the great clearance given to the piston (plate iv.): our study is to avoid loss of steam by giving the least possible clearance (seen also in plate i.); and I believe it is owing to attention to this point that marine engines have been successfully introduced into factories. In truth, where an independent engine is required, I believe few engineers would adopt the form of plate i. in preference to the marine; as, by substituting a fly wheel in place of the paddle wheels, and adding governors, a complete independent engine appears. I have enlarged more on this point than may appear requisite, in order to caution young engineers from going to an unnecessary expense for an independent engine; which they will assuredly do if they adopt the design in plate i. I would undertake to make a 30-horse marine engine for the cost of the 20-horse there shown. In a work of this nature, professing to be purely practical, I should have been better pleased, had the dimensions of each part been written on it, as is done in Mr. Telford's work on the Menai Bridge. They cannot be real working drawings without this, as they must of necessity be of different scales; and this causes confusion to workmen, to say nothing of the loss of time occasioned by taking dimensions, &c. I have used the term independent, instead of portable, engine, to

distinguish it from what are called house engines; that is, those which are connected with the building in which they are placed. Portability is not easily associated with a weight of thirty tons. Independent, in this case, means not dependent on a building for support. — *T. Norwich, Aug. 4. 1834.*

Birmingham Town Hall. — The critique, which appeared in I. 379., on the ceiling of this edifice, differs from every opinion I have before heard expressed upon it. If you could get a geometrical elevation of one of the principals of the roof, I am sure you would find it of as good a construction as any roof in England. A little sinking of the principal rafters has certainly taken place; but it has arisen in consequence of a space having been left between the principal rafters and the discharge rafters, which ought to have been wedged up at first, and may be easily rectified. — *A Resident in Birmingham. Dec. 3. 1834.*

We have applied to Mr. Welch for a drawing of this principal, which he has kindly promised to send us. — *Cond.*

Devonshire. — Exeter Athenæum. (I. 252.) — The report which assigned to Mr. Wightwick the design for the Athenæum now building at Exeter was erroneous. The mistake seems to have originated with the likelihood that one who had been giving lectures on architecture at most of the Devonshire literary institutions, might be the architect of the building in question; but such was not the case. — *B. Plymouth, Nov. 5. 1834.*

ART. III. Queries and Answers.

COLOURS and Drawing Instruments. — Whose colours are at present considered the best, and whose drawing instruments? Here we have Reeves's colours, which seem to be growing out of date; and Ackermann's, and also Newman's. I am told there is a description of colours in use by the architects of London, which are something between body colour and water colour, and which are said to be particularly suitable for elevations. I should be greatly obliged by any architectural student's answering this; as I should rely much more on his answer, than on that of any dealer, or even of any master architect. — *Thomas Andrew Brown. Rose Street, Edinburgh, Nov. 21. 1834.*

Which is the best Principle for an air-tight Door? — *Arthur K. Russell Square, Sept. 19. 1834.*

A Double Door. — The plan I submit to you was invented by me for an individual (since dead) who was much inconvenienced, particularly in cold weather, by the least current of air entering his apartment upon the ingress and egress of his attendant. It is a double doorway, constructed so that one door cannot be opened until the other is quite closed. I have since thought it would be a useful appendage to a dining-room, when fitted up in an appropriate manner, with trays to slide, &c. It might be placed in a partition, so that the different courses might be put in on one side, and taken out at the other, without the door of the dining-room being once opened during dinner; and there being no possibility of one door opening till the other was shut, no draught, but such as may be desirable, can enter that way. I have a model, on a small scale, fitted up with trays in this way; and it appears to me that it may answer such a purpose very well. I have no opportunity at present of ascertaining its utility on an enlarged scale; but should any of your readers desire to try it, and should wish to inspect my model, or a drawing of its principle, I shall feel great pleasure in furnishing them with it. — *William Coles. Kingsgate Street, Winchester, Nov. 4. 1834.*

We should be happy to receive from this correspondent such drawings, and descriptions of them, as would render his plan intelligible to our readers.